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THE DEVELOPMENT OF METHODS FOR PREDICTING SOIL MOISTURE CONTENT

REPORT ON THE ROCKFORD, WASHINGTON STUDY

PALOUSE EXTENSION OF THE VICKSBURG INFILTRATION PROJECT

THE DEVELOPMENT OF METHODS FOR PREDICTING SOIL MOISTURE CONTENT

REPORT ON THE ROCKFORD, WASHINGTON STUDY

By

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Conducted for

WATERWAYS EXPERIMENT STATION

CORPS OF ENGINEERS, U.S. ARMY

Vicksburg, Mississippi

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Inland Empire Research Center

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THE DEVELOPMENT OF METHODS FOR PREDICTING SOIL MOISTURE CONTENT

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THE DEVELOPMENT OF METHODS FOR PREDICTING SOIL MOISTURE CONTENT

Report on the Rockford, Washington Study

by

Raymond J. Boyd 1/

INTRODUCTION

The Forest Service, U. S. Department of Agriculture, at the request of the Waterways Experiment Station, U. S. Army Corps of Engineers, made preliminary investigations for developing soil moisture predictions in 1951 at Vicksburg, Mississippi. The trial of these methods began in 1952 with the establishment of the Priest River extension of the Vicksburg Infiltration Project. Upon completion of the Priest River study, additional studies were undertaken by this station, one of which was located at Miles City, Montana. The other, which is the subject of this report, was located in the vicinity of Rockford, Washington. The Rockford plots were established in January 1954 and regular measurements commenced on February 1, 1954.

1/ Forester, Intermountain Forest and Range Experiment Station, Inland Empire Research Center, Spokane, Washington. Howard W. Lull, of the Vicksburg Infiltration Project, Vicksburg, Mississippi, was in charge of the technical aspects of the study until September, 1954. The study was completed under the technical supervision of Jerry S. Horton who succeeded Lull as project leader. C. A. Wellner, Leader, Inland Empire Research Center was in administrative charge of the project. Austin E. Helmers supervised the project until January 1, 1955. James C. Holland, Soil Scientist, assisted with field measurements and analysis during the spring and summer of 1954.

Regular field observations were discontinued in October of the same year. The factors affecting soil moisture and the methods of predicting soil moisture have been discussed in previous reports (1, 2, 11, 12) on the Vicksburg studies. The field and analytical procedures for the Rockford study are prescribed in these reports with the exception of some minor modifications deemed desirable for the conditions encountered in this area.

DESCRIPTION OF EXPERIMENTAL AREAS

Location

The five study sites were within 5 miles of Rockford, Washington and lie on the fringe of the famous Palouse wheat country (fig. 1). Site designations and locations are shown in table 1 and in figure 2.

Table 1.--Description of experimental areas

Descriptive designation	Location	Waterways Experiment Station Classification: Site No.	Trafficability Soil-climate classification
	East Williamette Meridian		
Valley	SW¼, NE¼, Sec.3, T23N, R45E		C-2
Forest	NE¼, SE¼, Sec.27, T23N, R45E		C-2
Couse	SW¼, SE¼, Sec.27, T23N, R45E		C-2
Fallow	NE¼, SW¼, Sec. 6, T22N, R45E		C-2
Wheat	NE¼, SW¼, Sec. 6, T22N, R45E		C-2

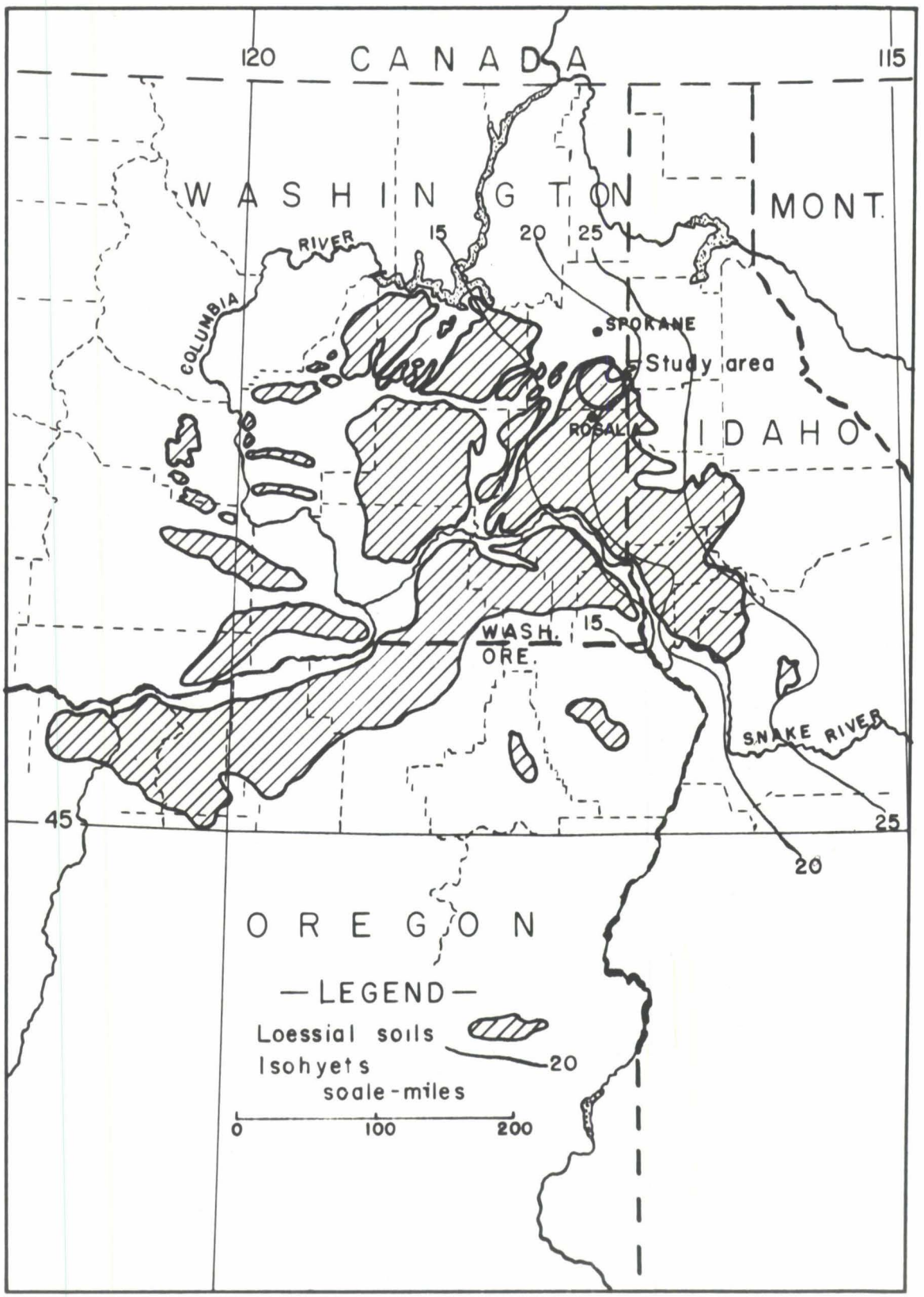

Figure 1. Extent of loessial soils in and adjacent to the "Palouse" country of the "Pacific Northwest".

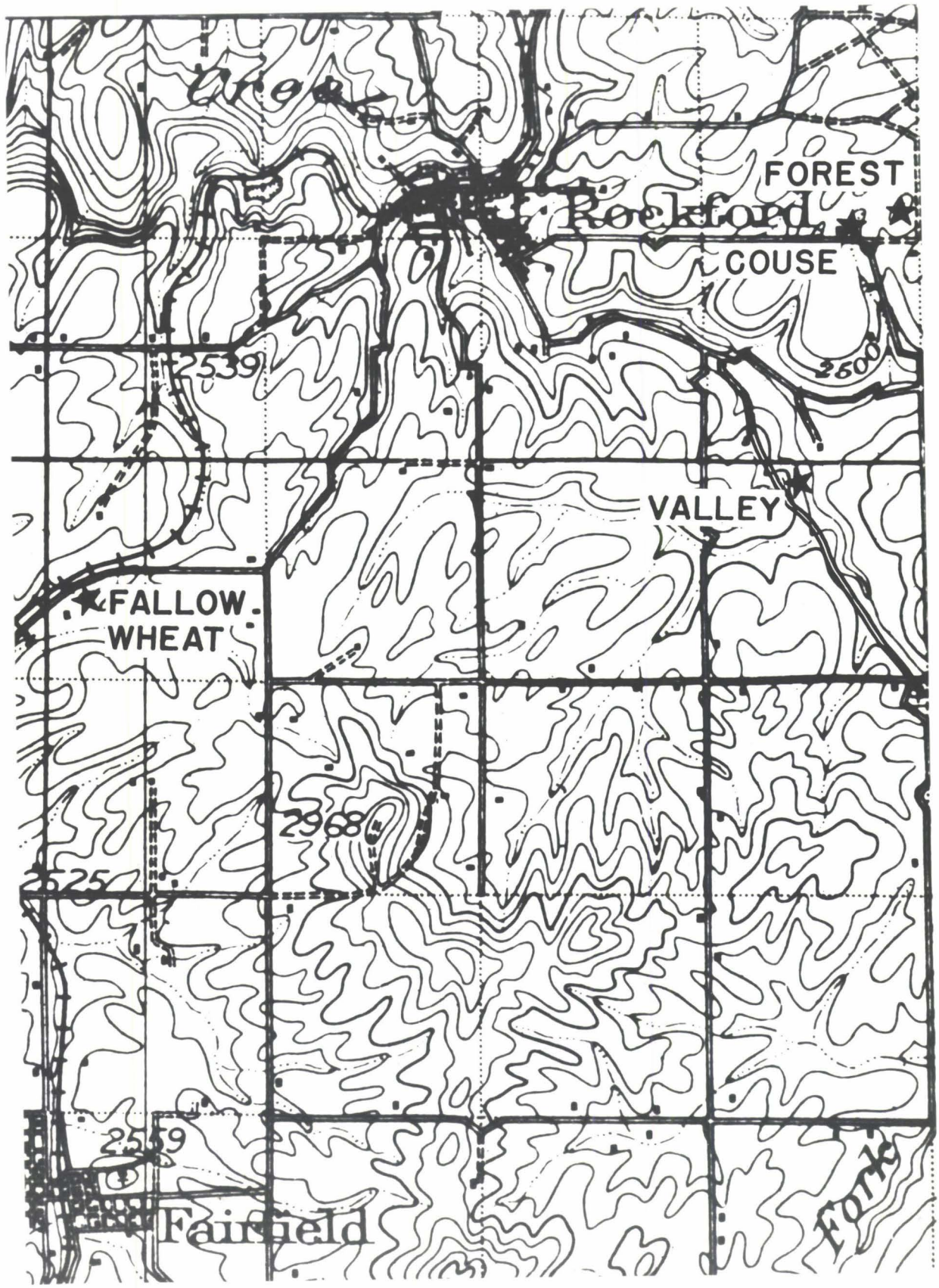

Figure 2. Location of prediction sites near Rockford, Spokane County, Washington showing typical "Palouse Hills" topography.

Geology and Physiography

The study area was selected as being representative of the general "Palouse hills" topography. In general, the Palouse hills occupy the area bounded by the Columbia River of central Washington, the western foothills of the Bitterroot mountains in Idaho, the glacial moraines south of the Spokane River, and the Blue mountains of Washington and Oregon. The area is a dissected plateau lying between 1500 and 2800 feet elevation. The topography can best be described as dune-like, with the average hills 200 feet high. Practically all land in the Palouse hills is sloping with higher gradients on the north and northeast slopes. Most ridges are oriented in a southeasterly-northwesterly direction and are generally crescentric in shape (fig. 3). An occasional stream forms a broad alluvial bottom cutting through the surface soil and into the underlying basalt (4, 5, 8, 9).

Soils

The soils of the Palouse country are loessal in origin and extremely deep. In some areas the underlying basalt lies at depths exceeding 100 feet and is seldom shallow enough to influence the character of the surface soil. It is believed that the parent material originated along the flood plains of the Columbia River to the southwest and was deposited by the prevailing southwesterly winds (5). More recently these original parent deposits have been modified by deposits of volcanic ash which are mixed with the original loessal deposits to various degrees, depending upon the

Figure 3. Snow accumulation on the lee slope of a typical "Palouse hills" landscape.

distance from origin of the ash and upon microtopography. In the southwestern portion of the area this mixing has been nearly complete, while in the northeastern section layering is more in evidence, especially on the northeast slopes and in timbered areas where retarded winds would deposit most of their load of suspended particles. Under these conditions there is a definite layering of parent material and a planozoic type of soil has developed (7).

The alluvial soils of the area are generally of the same parent material with a small amount of basaltic admixture. Though not extensive in area they are common along the smaller headwater streams. At the middle and lower portions of their length the streams cut narrow V-shaped valleys through the loessal deposits and into the underlying basalt, depositing little soil material.

Three distinct soil types were represented in the study as follows:

Caldwell silt loam, an alluvial soil common throughout the area. While there are not large acreages of this soil type, it is important from the standpoint of trafficability since it lies in the valleys which are rather heavily traveled.

Couse silt loam, a rather heavy textured silt loam typical of soils which developed under heavy stands of ponderosa pine. This and related soils are common to the fringe of the Palouse country along the Bitterroot mountains in Washington and Idaho and are rather extensively used for farming although considerable forested areas can be found in this type.

Palouse--Thautuna silt loam (intergrade), a medium textured soil high in organic content which was developed under mixed grassland conditions. This is a gradation between two of the soils of the Palouse catena as described by Lotspeich and Smith (5). This association is common to most of the eastern portion of the Palouse hills lying within the 12-25 inch precipitation belt and consists of three distinct types. The long gentle southwesterly slopes have fostered the development of the Palouse soils; Athena soils dominate the dry ridges; and Thautuna soils are restricted to the moist northeast slopes.

Detailed soils descriptions were made by the State Soil Scientist of the Soil Conservation Service. (See appendix page 60).

Soil Texture, Plasticity, and Bulk Density

The soils laboratory of the Waterways Experiment Station made the mechanical analyses of soil texture and determined the Atterberg plasticity constants for the surface 12 inches of the four soils studied. Bulk density was determined with a San Dimas sampler (12, Vol. 2, p. A31). These physical characteristics are summarized in tables 2 and 3.

Soil Moisture Tension

Soil moisture contents at saturation and at a tension of 60 centimeters of water (.06 atmosphere) were obtained at Vicksburg by use of a tension table and are summarized in table 4. The 60 cm tension values were used to evaluate the observed field maximum values where high water tables made determination of field capacity uncertain.

Table 2.--Soil texture and plasticity

Site	Soil type	Depth	Mechanical Analysis 1/			Plasticity Constants		
			Sand	Silt	Clay	Liquid Limit	Plastic Limit	Plasticity Index
		Inches	- - - - - - - - - - - - - - - - - - Percent - - - - - - - - - - - - - - - - - -					
Valley	Caldwell	0-3	18	68	14		Non-plastic	
	Silty clay	3-6	21	66	13		Non-plastic	
	loam	6-9	17	70	13	37	29	8
		9-12	22	65	13	32	24	8
Forest	Couse	0-3	11	73	16	33	25	8
	Silt loam	3-6	16	65	19	34	23	11
		6-9	16	65	19	32	22	10
		9-12	11	70	19	34	21	13
Couse	Couse	0-3	16	69	15	26	25	1
	Silt loam	3-6	18	68	14	25	25	0
		6-9	16	68	16	27	22	5
		9-12	15	64	20	29	20	9
Fallow	Thatuna	0-3	21	67	12	33	27	7
	Silt loam	3-6	16	69	15	35	28	7
		6-9	9	76	15	34	26	8
		9-12	17	68	15	37	25	12
Wheat	Thatuna	0-3	15	69	16	34	25	9
	Silt loam	3-6	15	70	14	35	25	10
		6-9	18	67	15	36	26	10
		9-12	13	75	12	36	27	9

1/ USDA particle size classification:

Sand 0.05 to 2.0 mm
Silt 0.002 to 0.05
Clay 0.002 and smaller

Table 3.--Soil bulk density[1/]

Depth	Site									
	Valley		Forest		Couse		Fallow		Wheat	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
Inches	Grams per c.c.									
0-3	1.26	1.22	1.15	1.10	1.26	1.26	1.09	1.06	1.11	1.13
3-6	1.30	1.26	1.20	1.13	1.24	1.24	1.08	1.05	1.05	1.04
6-9	1.20	1.22	1.09	1.12	1.23	1.28	1.12	1.17	1.15	1.12
9-12	1.30	1.23	1.12	1.11	1.29	1.32	1.14	1.16	1.14	1.12

1/ Based on 3-4 San Dimas samples per 3-inch increment

Table 4.--Soil moisture tension data

Site	Soil type	Depth	Soil moisture content at moisture tensions in atmospheres of: 0	.06
		Inches	Percent	
Valley	Caldwell	0-3	38.0	32.2
	Silty clay	3-6	41.5	32.4
	loam	0-6	39.8	32.3
		6-9	51.7	40.6
		9-12	40.6	34.4
		6-12	46.2	37.5
Forest	Couse	0-3	38.3	29.0
	Silt loam	3-6	42.1	32.2
		0-6	40.2	30.6
		6-9	45.3	30.8
		9-12	47.4	29.3
		6-12	46.4	30.0
Couse	Couse	0-3	37.9	30.5
	Silt loam	3-6	39.0	31.0
		0-6	38.4	30.8
		6-9	39.0	28.4
		9-12	40.2	29.4
		6-12	39.6	28.9
Fallow	Thatuna	0-3	38.3	28.2
	Silt loam	3-6	55.4	36.2
		0-6	46.8	32.2
		6-9	48.2	34.4
		9-12	55.3	38.0
		6-12	51.8	36.2

Vegetation

Vegetation, through the process of transpiration, is probably the factor having the most pronounced effect on soil moisture depletion. A number of meteorological factors undoubtedly exert a direct influence on soil moisture but their greatest influence occurs indirectly through vegetative processes. Vegetation develops in response to environment and as it develops, it in turn reacts on the environmental factors. For purposes of this report, the effects of vegetation are considered as relatively stable from year to year because the overall changes in factors influencing it are rather slight over long periods of time.

While the native vegetation on the Rockford plots has been almost completely replaced by cultivated species, small areas of forest stands and shallow-soiled native grasslands remain. The more arid soils of the Palouse catena originally supported a semi-arid grassland characterized by idaho fescue (Festuca Idahoensis Elmer.), bluebunch wheatgrass (Agropyron spicatum (Pursh) Scribn and Smith) and snowbush (Symphoriocarpos spp.). The more mesic Thatuna soils have developed under a mixture of these species plus larger species such as hawthorne (Crataegus spp.) and aspen (Populus tremuloides Michx.). Much the same is true of the alluvial Caldwell series. Forest vegetation is typical of the Couse soil series. The stands are characteristically pure or nearly pure ponderosa pine (Pinus ponderosa Dougl.) with an understory of snowbush, bluebunch wheatgrass, and idaho fescue.

Since the area is in a zone of relatively high precipitation, annual cropping is generally practiced. When the land is summer

fallowed it is generally done as a weed control measure, rather than for moisture accumulation. Common rotation in the annual cropping area is fall wheat followed the next year with a crop of edible peas. During the third year sweet clover is grown and plowed in as a green manure crop in the late summer. Winter wheat is sown again that fall. The alluvial bottom lands are quite frequently put into annual crops but many of them are in permanent pastures, as was the Valley site. Recent vegetational history on the study sites is as follows:

Valley. This site has had a pasture mixture of timothy, brome and clover for the past four years (fig. 4). During the period of study, the soil moisture study plots were covered to a density of between 7 and 8 tenths, predominantly with equal portions of kentucky bluegrass (Poa pratensis L.) and timothy (Phyleum pratense L.)(35 percent and 45 percent, respectively). A smooth and mountain brome (Bromus, spp.), canada bluegrass (Poa compressa L.), tar weed, yarrow, burnet, and knot grass were minor components of the plot vegetation.

Forest. This site was located in a 30 to 40-year-old stand of ponderosa pine (Pinus ponderosa Dougl.) (fig. 5). Low vegetation covered the soil moisture plots to a density of between 1 and 2 tenths. The predominant low vegetation was pine grass, which was accompanied by a lesser proportion of bluebunch fescue, snowberry, strawberry, dog tooth violet, and junegrass.

Couse. The Couse site was planted to winter wheat in late September of 1953. The area had been left fallow during the spring and summer of 1953 and this had been preceded by a winter wheat crop in

Figure 4. Nature grasses at Valley site July 1954. Soil moisture plots have been clipped to simulate hay harvest just completed outside of enclosure.

Figure 5. Thirty-year old stand of Ponderosa pine with sparse understory grasses and perennial forbs at Timber site.

1952. The area on which the soil moisture plots were located had been drilled on the contour with rows at the conventional spacing of 6 inches (fig. 6).

Fallow. The Fallow area had been sown to winter wheat in the fall of 1953 but all of the crop was pulled from the plot before 1954 spring growth was well underway and the plot was kept clear of vegetation by repeated cultivations for the remainder of the growing season. Not only was the vegetation pulled but the soil was mulched in a manner similar to actual practice although not quite as deeply. Prior to the 1954 wheat crop which was planted in this area, there had been a sweet clover crop in 1953 and a crop of peas in 1952 (fig. 7).

Wheat. This plot occupied the same plot area as Fallow and the same general crop history applies except that the 1954 winter wheat crop was allowed to mature (fig. 7).

Seasonal Development

Winter wheat on Couse, Fallow and Wheat plots was well established in January 1954 when the study equipment was installed. Leafage on the plants at Couse was 3 to 5 inches long. Plants at Fallow and Wheat were 1 to 2 inches smaller. The areas had been sown in late September or early October. The Fallow plots were cleared of all vegetation on April 1 before spring growth had commenced, and were kept clear of vegetation and well mulched during the remainder of the period of record. Development of the crop at Wheat lagged about one week behind the Couse crop which headed out around June 7 as

Figure 6. Couse site in late September 1954 with Forest site 1/4 mile in background.

Figure 7. Combined Fallow-Wheat plot. June 1954.

compared to June 16 at Wheat. The crop matured around mid-August but due to unseasonable rains was not harvested until after the first week in September. A 3 to 4 inch stubble was left and the plots remained in this condition until the study was discontinued. A small amount of volunteer regrowth was left on the plots after harvest. No attempt was made to simulate fall plowing.

Spring growth first became conspicuous on the Valley plots during the last week in March. On April 7 the Valley grasses were 3 to 4 inches high. On May 13 the pasture grasses were heading and were 12 to 18 inches high. Grazing was simulated on May 20 by clipping back to a 2 to 3 inch stubble. Growth after the first week in June was very rapid and corresponds to the greatest soil moisture depletion rate. By July 12 the grasses had reached an average height of 2 feet, were maturing, and were consequently "harvested" by clipping back to a 3 to 4 inch stubble. Regrowth by August first had added 5 to 6 inches to some plants. Fall regrowth was minor.

Development at Forest paralleled that at Valley. Spring growth was underway by April first and the earliest vegetation (Tellima spp. (Pursh) Dougl. and Erythronium spp. L.) was in bloom by April 16. Growth on the dominant ponderosa pine vegetation had a slow start in May and reached its peak after the early June rains. Early June was also the most active period for the subordinate vegetation. No re-growth in response to late summer and early autumn rains was observed.

METEOROLOGICAL FACTORS

The climate of the Palouse country is of the modified maritime type. Moisture laden air masses from the Pacific Ocean are forced up by the coastal range of mountains where they deposit most of their precipitation. After crossing the coastal ranges the air masses precipitate very little of their moisture until they are again lifted by the Bitterroot range of northern Idaho. The effect of this second lifting is felt in the vicinity of Rockford where an average of 20 inches of precipitation is received as compared to less than 10 inches at places in the Columbia Basin, a distance of less than 100 miles. Palouse winters are cloudy with considerable snow and rain. Strong southwest winds, high humidity, and sub-freezing temperatures characterize much of the winter period. Chinook winds are common and result in considerable snow melt during periods when the surface soil is frozen solid. Consequently much of the winter and early spring precipitation is ineffective in increasing the moisture content of the soil mantle (9). Summers are generally clear with little precipitation, July and August generally receiving only 1/2 inch of rain each month. The average annual precipitation of 20 inches is concentrated in the early spring, late autumn, and winter months. Strong winter winds coupled with the rolling topography create innumerable micro-climates. Drifting snow accumulates on the steep northerly slopes after being removed in part from the southerly slopes and almost entirely from the ridges (fig. 3). It has been estimated that ridge tops receive 10 inches of effective precipitation

whereas north slopes may receive from 60 to 100 inches (8). Not only is effective precipitation widely variant between different slopes, but other micro-meteorological factors such as temperature and humidity differ greatly. The result is a very complicated pattern of soil types and micro-climates which respond in various ways to the measured gross meteorological factors.

Basic meteorological factors, such as solar radiation, precipitation, wind, air temperature, and relative humidity, affect soil climate and moisture directly through such processes as heat exchange, evaporation, infiltrating water, changes in soil air, and exchange of soil and atmospheric air. These factors also indirectly affect the soil through their effect on vegetation. From the standpoint of predicting the soil moisture depletion at a particular site, vegetation is the principal means by which meteorological factors exert an influence on the soil moisture losses. In comparison, the direct effect of meteorological factors independent of vegetation is small. On bare areas, of course, the physical factors have the major effect. Meteorological factors are variable from day to day, but their net change is usually small from year to year, thus the differences in net effects of meteorological factors on vegetation between one year and the next usually are not pronounced. Rainfall adds directly to the water in the soil and is the most important meteorological factor , such as condensation, may result in soil moisture gains but their effectiveness as compared to rainfall is minor.

The U. S. Weather Station at Rosalia, Washington, a distance of approximately 20 miles from the plot area offers data which are

probably most representative of the climate at Rockford (13). While the average annual precipitation at Rosalia is 17.78 inches, precipitation in the vicinity of Rockford is probably closer to 20 inches. The mean annual temperature at Rosalia is 47.2 degrees and varies from a low monthly mean of 27.6 degrees in January to a high of 67.6 degrees in July. Temperature extremes are -26 and 108 degrees. The average growing season is 140 days with the last killing frost on May 13 and the first killing frost in the fall occurring on an average date of September 30 (10).

Instrumentation

U. S. Weather Bureau standard precipitation gauges were located at Valley, Couse, and the combination Fallow-Wheat plot. Each of these gauges was shielded with the Alter type windshield. Forest Service type precipitation gauges were located at each of the four corners of the two soil moisture plots in the Forest site. Air temperature, humidity, wind velocity, and precipitation intensity records were obtained for the entire period of record at Couse. Air temperature, relative humidity, and wind velocity records were kept for shorter periods of time with a roving weather station at each of the other four sites.

Precipitation

Monthly precipitation records at each study site and at the Rosalia weather station are summarized in table 5. At the beginning of the record there was a variable snow cover on all the plots. The January 31 water equivalent ranged from 2.15 inches at Valley to 9.80 inches on the lee slope of the Fallow-Wheat area. The degree to which

Table 5.--Precipitation by months

Month 1954	Valley	Forest	Couse	Fallow & Wheat	Rosalia W. B. 1954	Rosalia normals	Departure from normal
	Inches						percent
January	1/2.15	1/2.50	1/2.50	1/9.80	3.03	2.02	150
February	1.37	1.02	1.33	1.54	.95	1.65	58
March	1.62	1.15	1.59	1.56	1.30	1.61	81
April	1.31	.67	1.15	1.27	1.10	1.34	82
May	1.41	.86	1.12	1.29	1.01	1.72	62
June	1.65	1.44	1.81	2.08	1.82	1.22	149
July	1.19	.88	1.16	1.14	1.07	.59	181
August	1.79	1.31	1.77	2.10	1.81	.56	323
September	2.33	1.76	2.21	2.18	1.31	1.11	119
October	1.45	.99	1.43	1.50	1.29	1.54	84
November2/	2.60	1.71	2.37	2.44	1.83	2.67	69
December					1.38	2.34	59

1/ Water equivalent of snow on plots as of January 31.
2/ Through December 7, 1954

this snow and subsequent February rainfall contributed to soil moisture supply is questionable due to frozen surface soil.

Comparison of the Rosalia precipitation record with the long time average of that station shows that the February through May precipitation was considerably below normal. In February only 58 percent of normal precipitation was received. Rainfall in June, July, August and September was well above normal varying from 119 percent of normal in September to 323 percent in August. Fall rainfall dropped as low as 69 percent of normal in November.

The highest intensity of rainfall at Couse site was 2.68 inches per hour for a period of 4 minutes on September 18 (figs. 8, 9, 10). General observations of longtime residents would indicate that this was one of the most intense storms ever experienced there. This storm resulted in considerable runoff on the cultivated study areas. Runoff washed 1 to 2 inch rills on the Fallow plot. Evidence of surface flow was barely perceptible on Wheat and Couse sites. The average storm intensity for the 1954 season was .11 inches per hour. Winter and spring storms are notably gentle. Summer storms, while scarce, tend to be of the more intense thunderstorm type.

Air Temperature

The 1954 mean monthly air temperatures at Rosalia varied from 5.2° F. below normal in June to 5.5° F. above normal in November (table 6). The average deviation from monthly normals for the period from February through October was -1.9° F. Only February and May had above normal average temperatures. January and February were the coolest months of the year with monthly mean temperatures of 28.7° F.

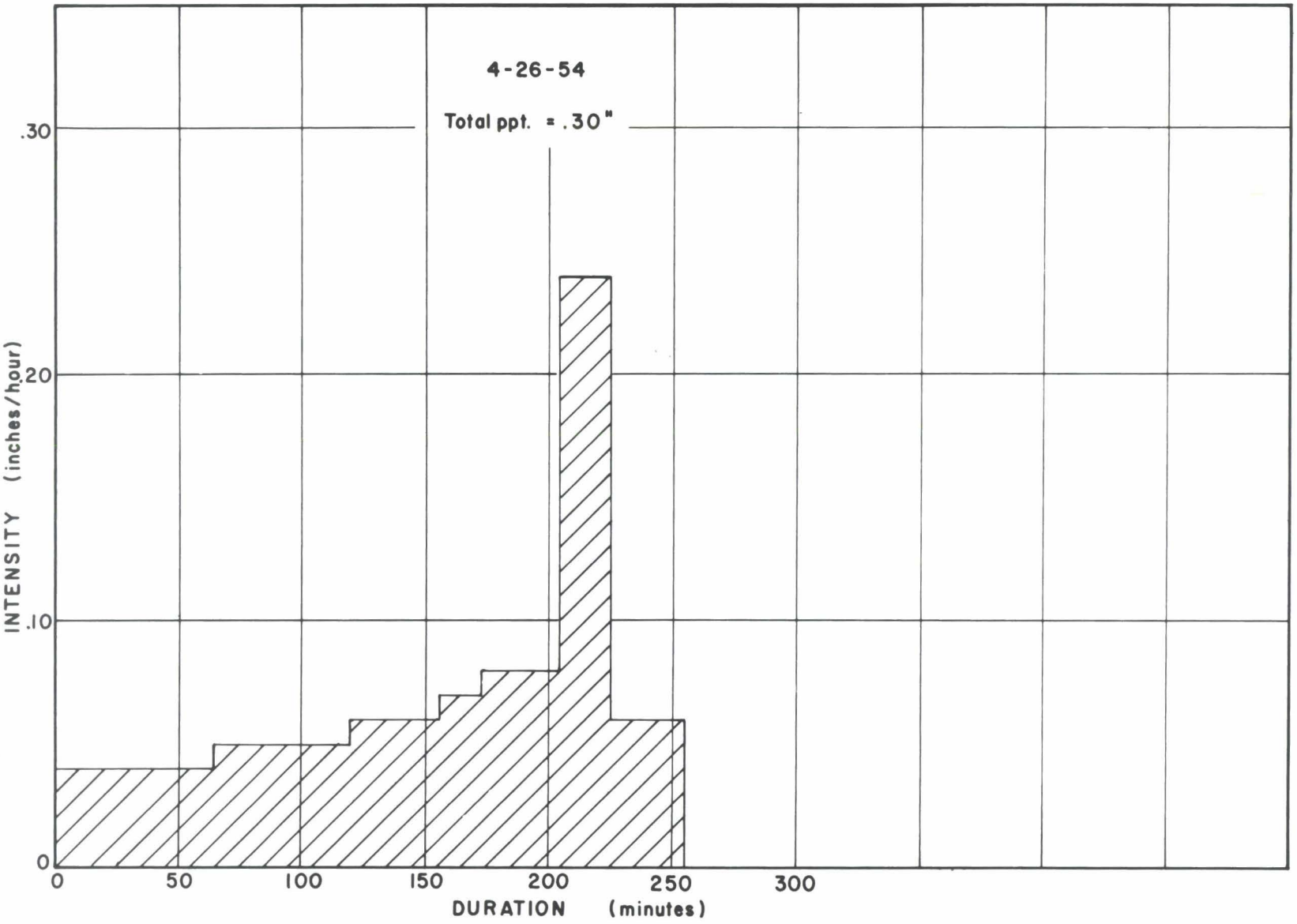

Figure 8. Rainfall intensity - duration graph, Couse site, storm of April 26, 1954.

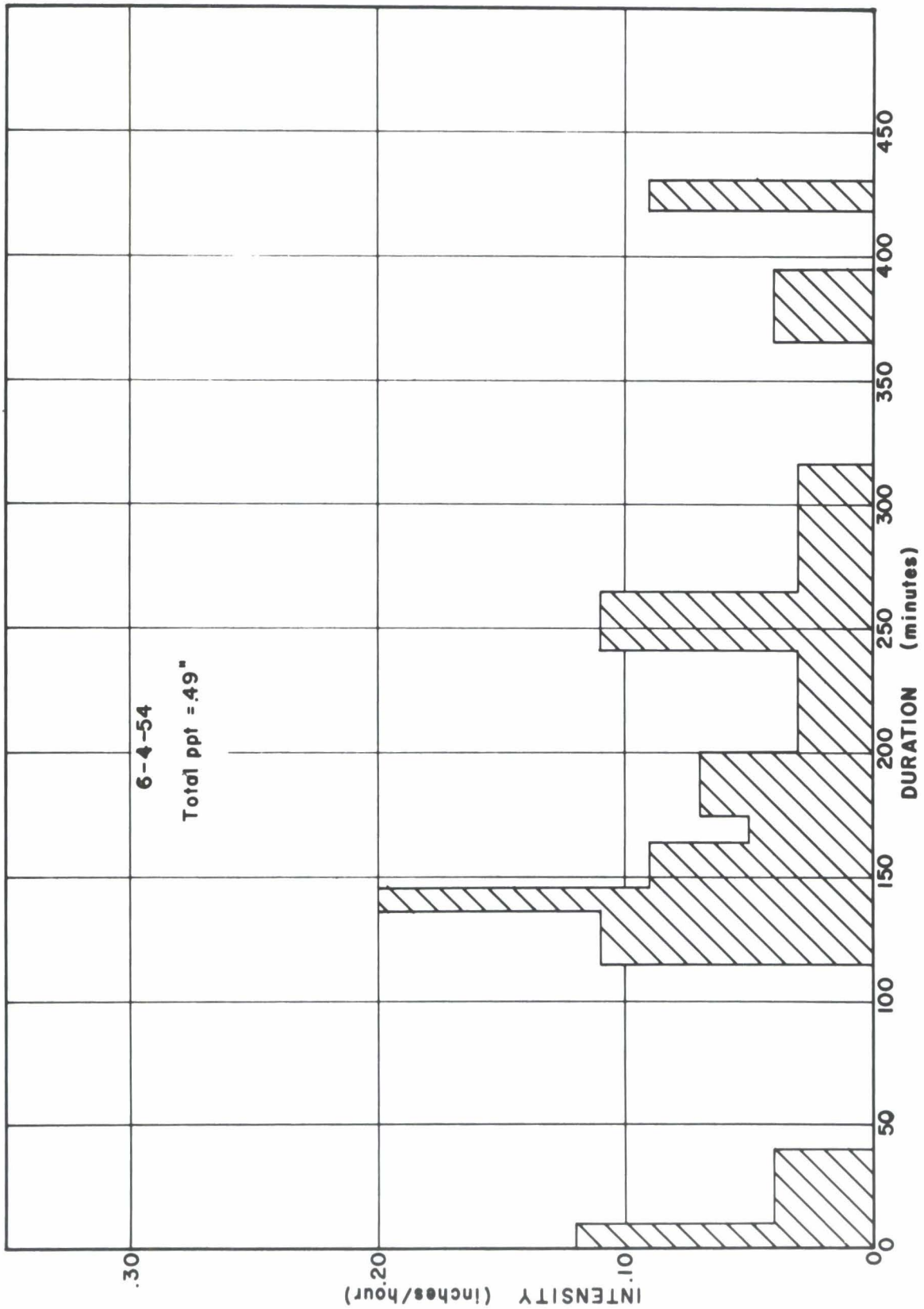

Figure 5. Rainfall intensity - duration graph, Couse site, storm of June 4, 1954.

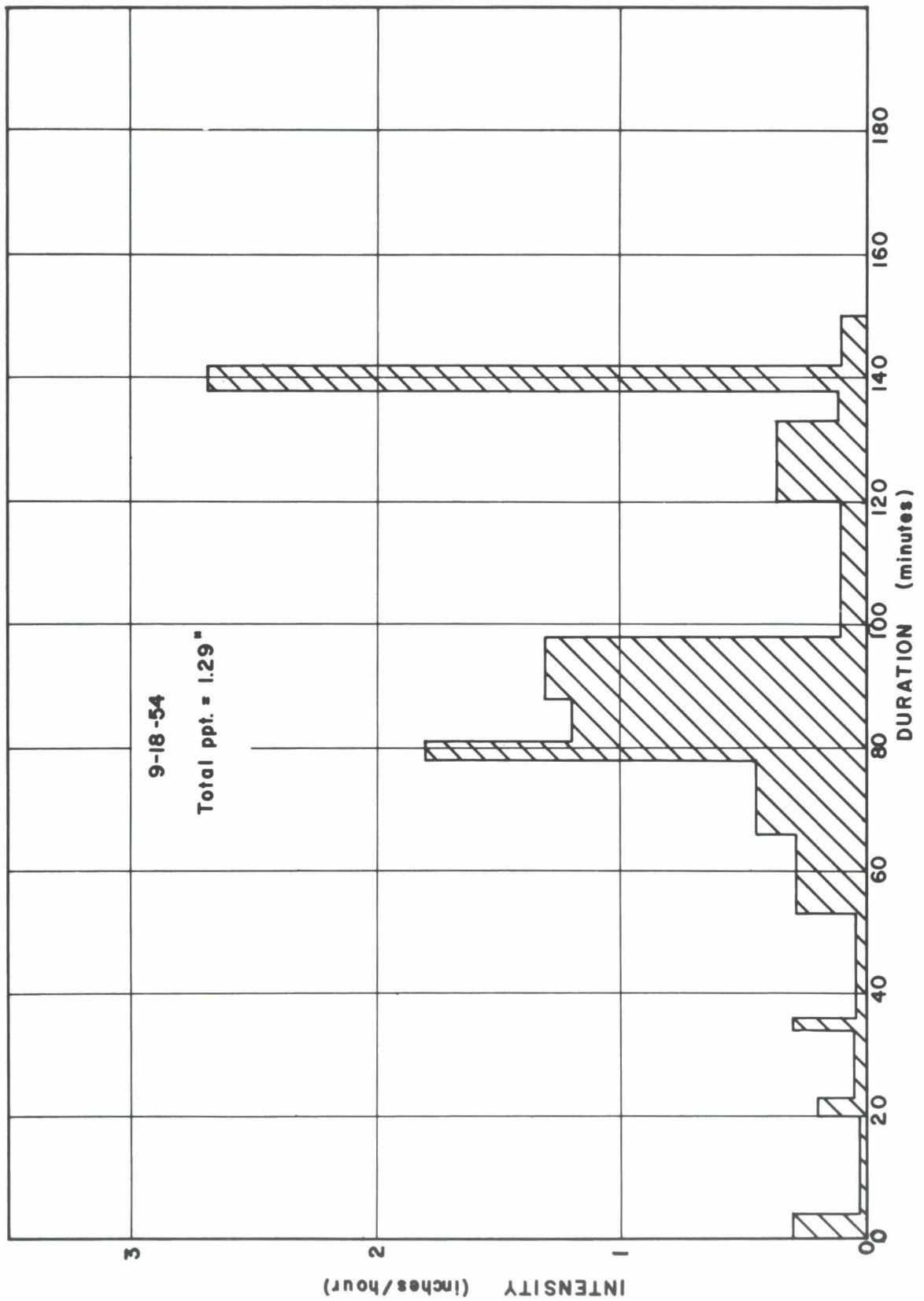

Figure 10. Rainfall intensity - duration graph, Couse site, storm of September 18, 1954.

Table 6.--Monthly temperature summary-Rosalia and "Couse" site

Month	Average monthly temperature Rosalia 1954	Departure from normal Rosalia	Average monthly temperature Couse	Mean Monthly Maximum	Mean Monthly Minimum
			Degrees F		
January	28.7	+1.1	-	-	-
February	33.9	+2.6	34	46	25
March	36.7	-2.5	36	48	24
April	44.2	-2.6	42	54	30
May	54.2	+0.4	54	70	39
June	54.8	-5.2	55	68	41
July	64.6	-3.0	66	84	48
August	62.5	-4.1	63	80	47
September	56.8	-1.0	59	76	43
October	46.9	-1.4	48	64	32
November	43.0	+5.5	-	-	-
December	30.7	+0.1	-	-	-
Mean	1/50.5	1/1.9	51.0		

1/ For period of Couse record only.

and 33.9° F., respectively. The warmest month was July which had an average temperature of 64.6° F. which was 3.0° F. below normal. The mean annual temperature at Rosalia is 47.2° F.

Average monthly maximum temperature at Couse was highest in July, 84° F. and lowest in February, 46° F. The mean minimum was also highest in July and lowest in February with 48° F. and 25° F., respectively.

Wind

Average monthly wind velocities for the Spokane Airport weather station and the Couse site are summarized in table 7 (13). These velocities at Rockford ranged from 8.1 miles per hour in April to 3.5 m.p.h. in August. The highest mean velocities of 11.4 m.p.h. occurred twice, once in late February (1 day approximately) and in early April (2 days). Late winter and early spring months are usually the most windy while summer velocities are the least.

In the Palouse country, these relatively high wind velocities are a very important factor in the determination of soil moisture. Not only does wind redistribute that portion of the precipitation received as snow, but it probably plays a major role in soil moisture depletion. During March and April it was observed that the soil on southern and western exposures became dry enough to be removed by the wind even when temperatures were quite low. Perhaps the extremely rapid winter-spring soil moisture depletion rate at Couse can be attributed to the wind and soil frost factors (see Soil Moisture Depletion and Soil Temperature).

Table 7.--Summary of wind velocities, Spokane airport and Couse site

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	- Average velocity m.p.h. -											
Spokane	9.6	9.8	7.7	10.5	7.6	9.3	7.6	6.9	6.6	6.6	7.2	
Couse site		6.0	6.5	8.1	5.7	5.2	3.6	3.5	4.2	4.9		

SOIL FACTORS

Instrumentation

Two tiers of fiberglas soil moisture instruments as designed by Colemen were installed at each site by the auger-hole method described by Reinhart (6) at the midpoints of 3-inch horizons, viz., 1-1/2", 4-1/2", 7-1/2", 10-1/2", 13-1/2", 16-1/2", 19-1/2", and 22-1/2" at Valley, Fallow, and Wheat. Additional fiberglas units were installed at 30 and 42 inches at Forest and Couse sites. The fiberglas units were calibrated by frequent gravimetric determinations of the soil moisture content of samples taken at random from a 6-foot square sampling plot surrounding each tier. Fiberglas units were usually read three times per week. These readings of electrical resistance were converted to inches of moisture using calibration curves for each electrical soil moisture instrument. Values obtained by 3-inch layers were added to obtain soil moisture by the 0-6 inch and 6-12 inch depths. No analysis was made of information from the deeper units.

Some difficulty was experienced in obtaining satisfactory calibration curves for the three surface units on Couse, Fallow, and Wheat sites. An apparent shift of the curve to the left was noted when the soil was moistened in late May and early June, after a relatively long dry period (figure 11). A similar shift was associated with the early September rainfall on some sites. Such a change in the relationship of soil moisture content and the resistance properties of the fiberglas units could be associated with either an accumulation of soluble salts in the soil or a change in physical properties brought about by gradual

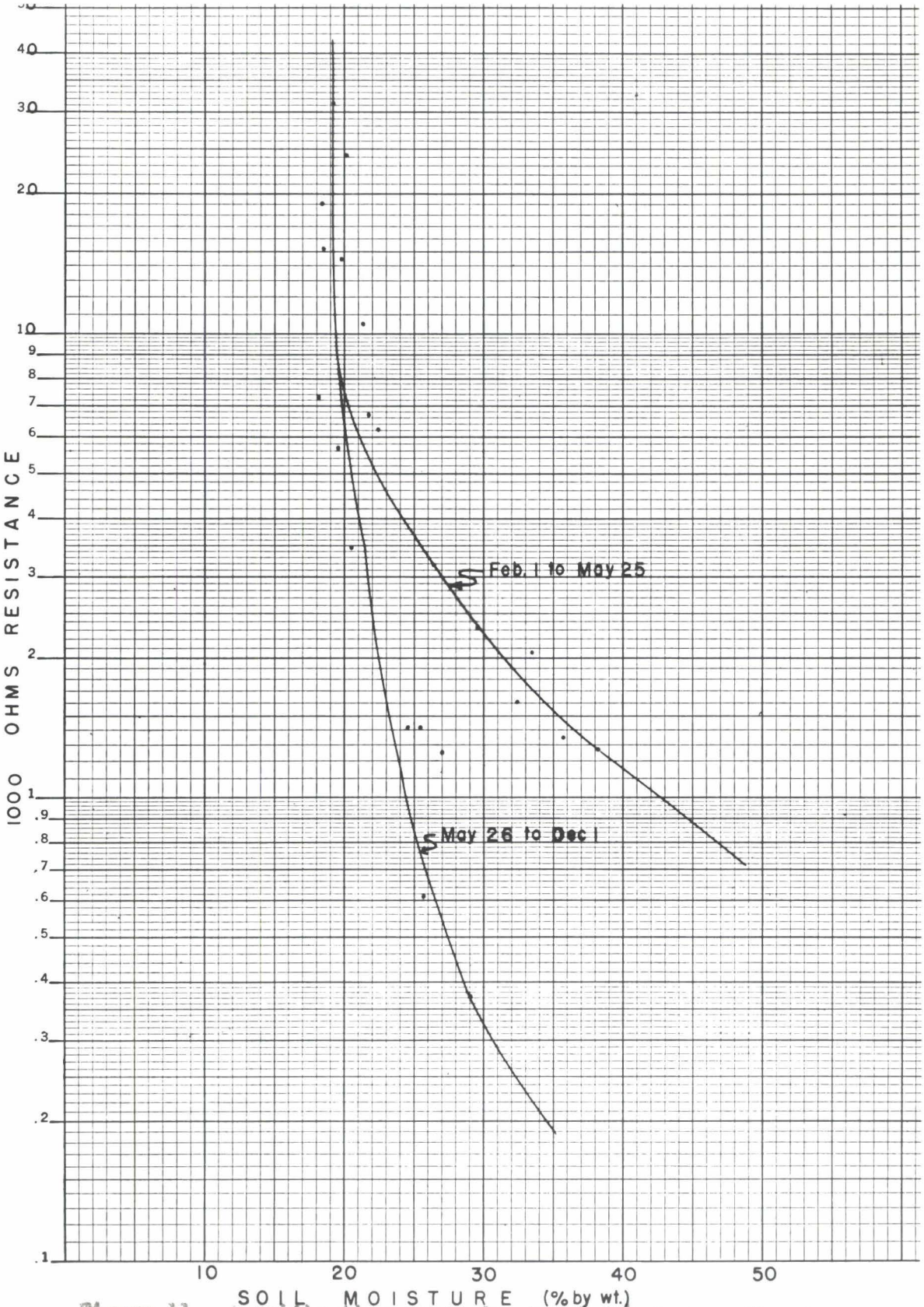

Figure 11. A calibration curve for the 1-1/2 inch soil moisture unit at Fallow Tier 1, showing the shift in calibration curves apparently occurring around the latter part of May.

settling of the Ap horizon following the loosening action of fall plowing and the alternate freezing and thawing of the late winter and early spring period.

Salts could accumulate as a result of gradual decomposition of organic materials plowed under in the fall. The bulk density of the Ap horizon probably increased during the period of record changing the physical condition of the soil and its water holding properties. Both of these factors were probably instrumental in changing the calibration curve. Unfortunately no tests were made of changes in soluble salt contents nor changes in the bulk density of the soils over the period of record. Consequently any explanation for this change in calibration relationship is purely theoretical.

Soil moisture determinations were made by drawing separate calibration curves for the winter-spring period (February 1 to approximately May 25) and the summer-fall period (May 25 to October 25). Some units necessitated a second break in curves associated with the September rains.

Soil Moisture

The moisture content of the Palouse soil is usually near field capacity to a depth exceeding 2 feet at the beginning of the spring season. At the time the soil moisture instruments were installed in late January 1954, the soil at all depths probably was moistened to field capacity or above with the exception of the 30- and 42-inch units at the Forest site.

All of the soils, with the possible exception of the Couse site soil were influenced to some degree in late winter and early spring

by either a true ground water table or a perched water table common to planezoic soils (3). Apparently the influence of these perched water tables on the surface soil is carried over until late summer in some areas. Local farmers claim that it is not uncommon to have harvest machinery completely immobilized by a soft, wet area in an otherwise firm, dry field.

Mean monthly soil moisture contents are summarized in table 8. With the exception of the 6-12" depth at Valley, February soil moisture was the greatest for both depths, and on all sites August was the driest. The 6-12 inch layer at Valley had its greatest mean monthly soil moisture content in March. During the period of net depletion (February through August) the moisture content of the Couse soil was consistently the lowest of all the study areas. Valley moisture content was the highest of all study sites through June. The Forest plots were the slowest to become moistened in the fall due to smaller receipts of effective precipitation and possibly to transpirational losses. Soil moisture contents at Valley ranged from saturation to wilting coefficient. Ranges on other areas were from near saturation to wilting coefficient except at Fallow, which had a minimum moisture content approaching field capacity. Recorded soil moisture values are tabulated in the appendix, tables 14 through 38 and are shown graphically in the appendix, figures 16 through 25.

Estimates of field capacity were made on the basis of both the observed record and 60 cm. tension moisture contents (table 9). Valley site had the greatest field capacity in both the 0-6 and 6-12"

Table 8.--Mean monthly soil moisture contents in the 0-6 and 6-12 inch depths

Month: 1954	0-6 inch depth					6-12 inch depth				
	Valley	Forest	Couse	Fallow	Wheat	Valley	Forest	Couse	Fallow	Wheat
	Inches									
Feb.	3.06	2.52	2.27	2.73	2.47	3.11	2.34	1.97	2.82	2.67
Mar.	3.06	2.41	2.04	2.21	2.35	3.24	2.29	1.91	2.60	2.63
Apr.	2.76	2.22	1.37	1.98	1.86	2.75	2.05	1.60	2.31	2.25
May	2.30	1.74	.90	1.53	1.38	2.28	1.68	1.05	1.89	1.63
June	1.90	1.92	1.35	1.65	1.60	2.01	1.60	1.13	1.88	1.65
July	1.08	1.12	.84	1.48	1.06	1.05	1.12	.88	1.73	1.21
Aug.	.91	.84	.81	1.44	.99	.76	.78	.83	1.62	1.10
Sept.	1.61	1.18	1.48	1.62	1.69	1.02	.95	1.08	1.79	1.61
Oct.	1.54	1.02	1.33	1.44	1.64	1.17	.97	1.20	1.70	1.82
Nov.	2.21	1.59	1.93	1.91	1.99	1.54	1.17	1.64	1.99	2.03

Table 9.--Field maximum and minimum soil moisture contents 1/

Site	Maximum 0-6	Maximum 6-12	Minimum 0-6	Minimum 6-12
	inches water			
Valley	2.45	2.25	.54	.72
Forest	2.35	1.75	.66	.74
Couse	2.09	2.06	.42	.79
Fallow-Wheat	2.10	2.05	.66	1.06

1/ Uninfluenced by water table.

layers which were 2.45" and 2.75", respectively. The 6-12" layer at Forest had the lowest field capacity, 1.75 inches of water. The lowest observed moisture contents are also tabulated in table 9. The highest minimum was 1.06" in the 6-12" layer at Fallow and Wheat while the lowest was .42" of water in the 0-6" layer at Couse.

Soil Temperature

The mean monthly soil temperatures at the 1-1/2 inch and 10-1/2 inch depths for each site are presented in table 10. Readings were taken any time from early morning to mid-afternoon. This, of course, makes comparisons at the 1-1/2 inch layer impossible except for broad generalities. In general the surface temperatures are least throughout the year at Forest and Valley sites which supported stands of perennial vegetation. Forest surface soils were slowest to warm in the spring and slowest to cool in the fall. The surface soils at Couse were definitely the warmest due to the fact that the site is open and has a southerly exposure. This probably helps account for the fact that spring depletion rates in the 0-6 inch layer at Couse are as rapid as summer rates (see Depletion). No definite mean monthly temperature differences were noted at the Fallow and Wheat plots. However, it would be expected that Fallow would be the warmer of the two since there was no cover crop on it during the summer period. All of the trends which were evident in the 1-1/2 inch layer were expressed to a lesser degree at the 10-1/2 inch depth at all sites.

Soil insolation was probably greatest at Couse which had a southerly exposure and a relatively sparse vegetation. Next in

Table 10.--Mean monthly soil temperatures at the 1-1/2 and 10-1/2 inch depths

Month:	1-1/2 inch depth					10-1/2 inch depth				
1954	Valley	Forest	Couse	Fallow	Wheat	Valley	Forest	Couse	Fallow	Wheat
	Degrees Fahrenheit									
Feb.	33	33	34	35	32	34	34	34	35	34
Mar.	36	34	40	32	35	36	35	36	33	36
Apr.	40	39	47	44	44	40	38	41	40	39
May	49	47	64	60	60	49	46	52	50	50
June	53	50	62	60	60	52	49	54	52	52
July	60	57	70	69	68	58	55	62	62	62
Aug.	60	57	66	63	64	59	56	62	60	61
Sept.	51	52	58	56	54	52	53	55	54	54
Oct.	40	44	46	42	40	43	46	46	44	44
Nov.	40	42	43	44	41	40	42	42	41	40

amount of radiation received and possibly first during the summertime was the Fallow site. Here the angle of incidence of the sun's rays was not as great as at Couse, but there was no vegetation on the plot. Wheat occupied the same northerly aspect as Fallow but the soil had shade from the wheat crop. At Valley the aspect is neutral, but a dense cover of pasture grasses and accumulated leafage protected the soil from excessive insolation. While the Forest site is on a south exposure, it probably received less radiation than any of the sites due to a dense cover of 30-to 40-year-old Ponderosa pine.

GROUND WATER

Ground water influenced soil moisture depletion and accretion during the winter and early spring months at all sites except Couse. Valley was the only site affected by a true water table. Forest, Fallow, and Wheat were all influenced by a perched water table supplied by melting snow. Measurements of ground water depth were made at Valley and at the combination Fallow-Wheat site (Appendix, figures 16 and 24).

No attempt has been made in this study to predict ground water supplies or to use ground water level in predicting soil moisture content. Precipitation would be unreliable as a prediction factor since moisture for ground water comes largely from melting snow which enters the soil in an irregular manner due to the presence of variable soil frost. At Valley high ground water levels occurred when rain fell on a heavy snow pack which rested on frozen soil. The result was flood streamflow which raised the ground water level to the soil surface. At Wheat and Fallow water from the melting snowbank above the plots added to the ground water supply.

SOIL MOISTURE ACCRETION

Increases in soil moisture content (accretion) at the Palouse sites during the late spring, summer, and fall are due primarily to precipitation. During the winter and early spring period ground water may be the principal source of water for soil moisture accretion. Thawing of frozen surface layers also supplies accretion moisture to the layers below the frost line which have been desiccated by the freezing process. All of these supply processes were active from February until mid-April on most sites. After that time, ground water and thawing had little, if any, effect on soil moisture accretion.

The major factors which affect the rate and amount of accretion from rainfall are intensity and duration of storm and the ability of the soil to absorb rainfall, commonly spoken of as infiltration capacity. Storm characteristics may be modified to a large extent by intercepting vegetation and ground surface litter. Some soil factors which affect the infiltration capacity are texture, aggregation, the presence of passages through the soil mantle resulting from root or animal action, and the moisture content of the soil prior to receipt of rainfall. Storms of the Palouse country are noted for their low intensity, and, in only one case was there a storm of sufficient force to cause surface runoff. This was the storm of September 18 (fig. 10). While no actual measurements were made, the evidence on the ground indicated that runoff occurred at Couse and Fallow sites and possibly at the Wheat site.

The soils of Couse, Fallow, and Wheat cracked considerably as they became dry (fig. 12). These cracks extended to a depth of 4 or 5 inches in many cases and occasionally caused greater accretion at the lower depths than was recorded by the surface soil moisture units.

Some indication of the relative infiltration capacities of the plots was observed when small areas were artificially wetted in connection with soil strength tests. The Palouse-Thatuna and the Caldwell silt loam were the most receptive to applications of moisture while the Couse soils had lower infiltration capacities. At the Couse site it was difficult to moisten the soil to the 1-foot depth required in soil strength tests.

Since readings were not taken daily accretion amounts sometimes had to be estimated. This was done by extrapolating either forward to a time just preceding a storm or backward to a time soon after the storm. Depletion curves for the particular season were used as guides for these estimations.

The relationship of rainfall to soil moisture accretion was determined on the basis of space available for soil moisture storage. Available storage was determined from the maximum soil moisture content reached after the influence of ground water had disappeared and after the soil had settled a reasonable amount from the effects of fall plowing and winter freezing and thawing. These values are presumed to be the field capacity and agree reasonably well with 60 centimeter tension moisture contents determined at Vicksburg.

Figure 12. Soil cracking at Fallow. Fissures extend to a depth of 4 to 5 inches.

As in previous reports of this project, rainfall-available storage relationships may be differentiated into two accretion classes on the basis of storm size as follows:

Accretion Class	
I	Rainfall amounts which yield accretion amounts equal to or less than the available storage in the surface foot of soil.
II	Rainfall amounts which yield accretion amounts in excess of available storage in the surface foot of soil.

Rainfall-available storage relationships for accretion Class I storms express accretion as a linear function of rainfall (table 11). Relationships for Class II accretions were not determined because of insufficient Class II accretion conditions.

Under conditions of a high ground water table which varies from day to day, a rigid breakdown of storms into classes is impossible due to the inability to define available storage. Consequently, on the sites on which prediction was attempted for the winter and spring periods, separate accretion relationships were developed for those periods in which a high water table made its influence felt (table 11, Valley and Forest).

Maximum amount of rainfall (throughfall) which fails to result in the net soil moisture accretion is defined as the X-intercept of the accretion-precipitation regression line, and is thus the storm size for which accretion exactly balances depletion. For storm amounts in excess of this value, accretion is greater than depletion. Conversely, storm amounts less than the intercept value may add moisture to the soil but depletion exceeds the addition of water

Table 11.--Relationship of soil moisture accretion to rainfall

Site	Depth	Dates	Regression of accretion on Precipitation
Valley	0-6	Feb. 1 - May 22	Y = .222X + .013
		May 22 - Oct. 20	Y = .8053X - .0599
	6-12	Feb. 1 - Oct. 20	Y = .320X - .073
Forest 1/	0-6	Feb. 1 - Apr. 13	Y = .114X + .006
		Apr. 13 - Oct. 20	Y = .6922 - .0679
	6-12	Feb. 1 - Apr. 13	Y = .170X - .016
		Apr. 13 - Oct. 20	Y = .361X - .054
Couse	0-6	Apr. 5 - Oct. 20	Y = .8715X - .019
	6-12	Apr. 5 - Oct. 20	Y = .156X - .3239
Fallow	0-6	Apr. 5 - Oct. 20	Y = .6986X - .0365
	6-12	Apr. 5 - Oct. 20	Y = .1271X + .0031
Wheat	0-6	Apr. 5 - Oct. 20	Y = .8497X - .064
	6-12	Apr. 5 - Oct. 20	Y = .0877X - 0

Y = Soil Moisture Accretion
X = Precipitation

1/ Formulae relate accretion at Forest to precipitation at Couse.

so the result is a negative accretion or a net depletion. As rainfall amounts become smaller, the negative accretion becomes larger until with no rainfall the negative accretion theoretically is depletion uninfluenced by increments of soil moisture.

Observed soil moisture history associated with small storms indicates that their effect may be a function of the antecedent moisture content of the intercepting layer, in this case the soil and litter layer above the fiberglas unit at the 1-1/2 inch depth. Moisture of a storm of some small size might be entirely withheld by litter and upper soil layers that are considerably below field capacity. The same size storm might contribute an appreciable part of its volume to an apparent reduction of the depletion rate or a net accretion when the layers above the upper fiberglas unit are near field capacity due to previous rains and low evapo-transpiration rates. The formulae of table 11 average the range of these effects.

Accretion formulae for Forest relate soil moisture accretion to precipitation at Couse. It was felt that such a relationship would be more usable in that the open precipitation catchment at Couse is more like the gross measurements made by standard weather stations. The relationship between throughfall at Forest and total rainfall at Couse is expressed by the following formula:

$$Y = .800X - .017$$

Where Y = Throughfall at Forest

X = Rainfall at Couse (open site)

At Valley and Forest, where soil frost was not a problem, Class I accretion formulae were calculated for the early late winter and

early spring periods. Separate formulae were developed for the later periods when ground water was not influential.

At Couse, Fallow, and Wheat accretion formulae were developed using data obtained after April 5, when the influence of soil frost and high ground water had become negligible.

Calculated accretion values for the 6 to 12 inch layer were often much lower than observed values when the moisture content of the 0 to 6 inch layer was high. It is believed that improved rainfall-accretion relationships for the 6 to 12 inch layer could be obtained by using the antecedent moisture content of the 0 to 6 inch layer as a second independent variable.

SOIL MOISTURE DEPLETION

Soil moisture depletion rates for a given soil and depth are defined largely by time and soil moisture content, except as modified by high ground water levels. Time is a combination of factors such as transpiration, evaporation, and drainage of gravitational water.

Depletion curves for soil moisture prediction purposes were developed by superimposing and matching the graphs of individual rainless soil moisture depletion periods to produce a family of curves covering the moisture range from the maximum observed to the minimum on record. Smooth curves (figs. 13, 14, 15) averaging the depletions were drawn and reduced to tabular form (tables 39-43) from which the curves can be replotted to any desired scale.

On most sites depletion rates grouped themselves into three distinct periods (table 12): the winter-spring period commencing at a time when ground water influences are negligible and continuing

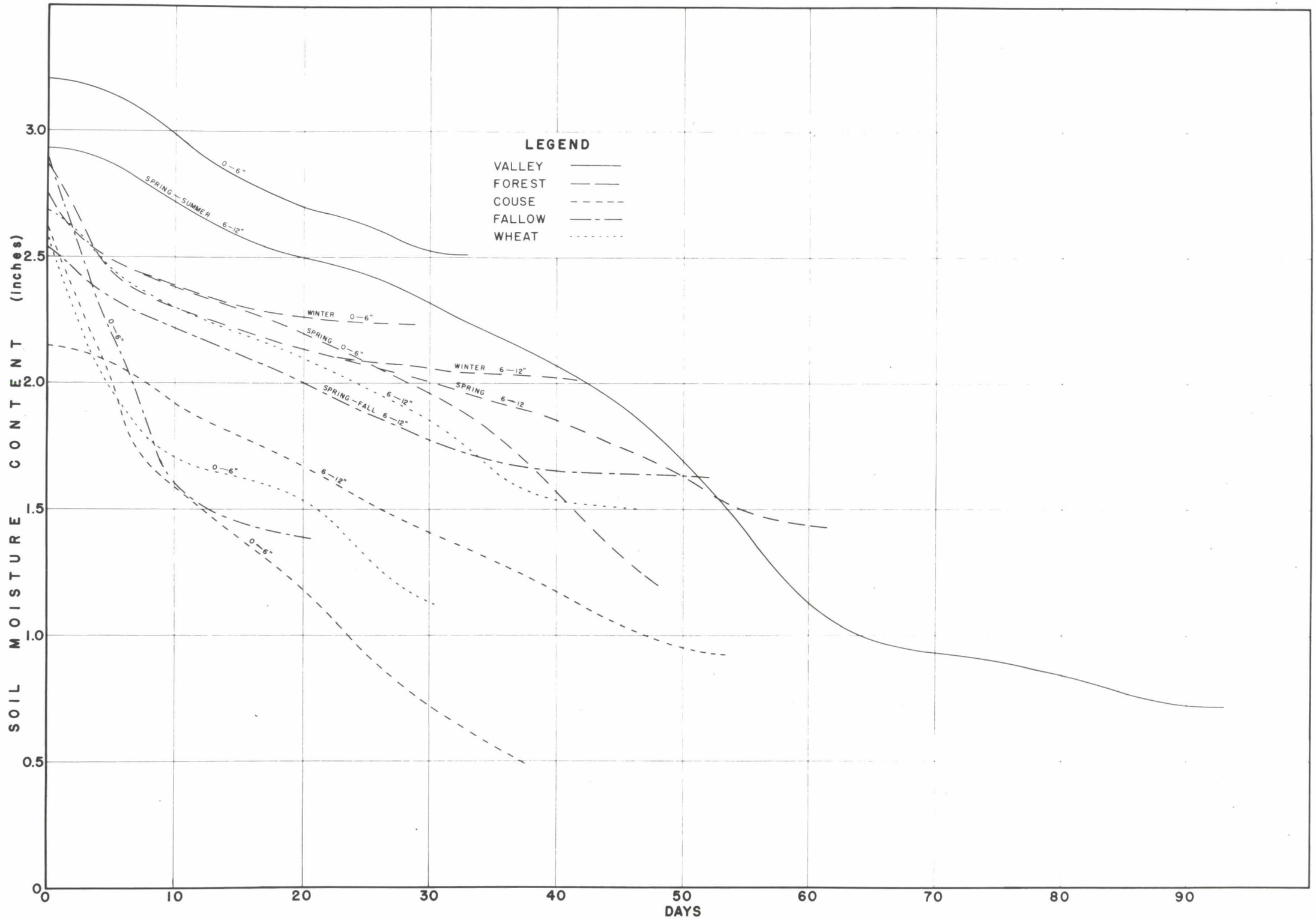

Figure 13. Soil moisture depletion curves for the winter-spring period.

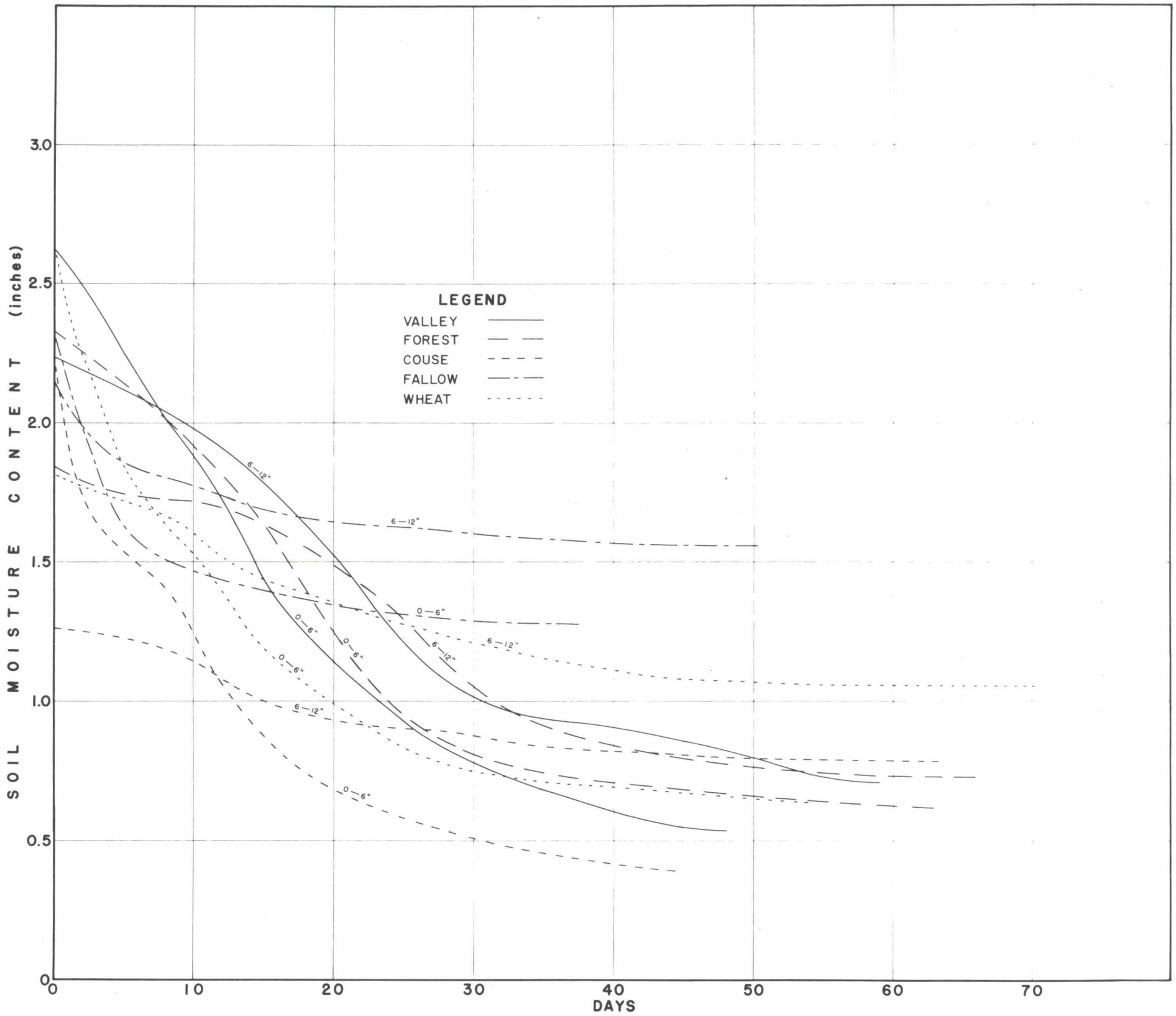

Figure 14. Soil moisture depletion curves for the summer period.

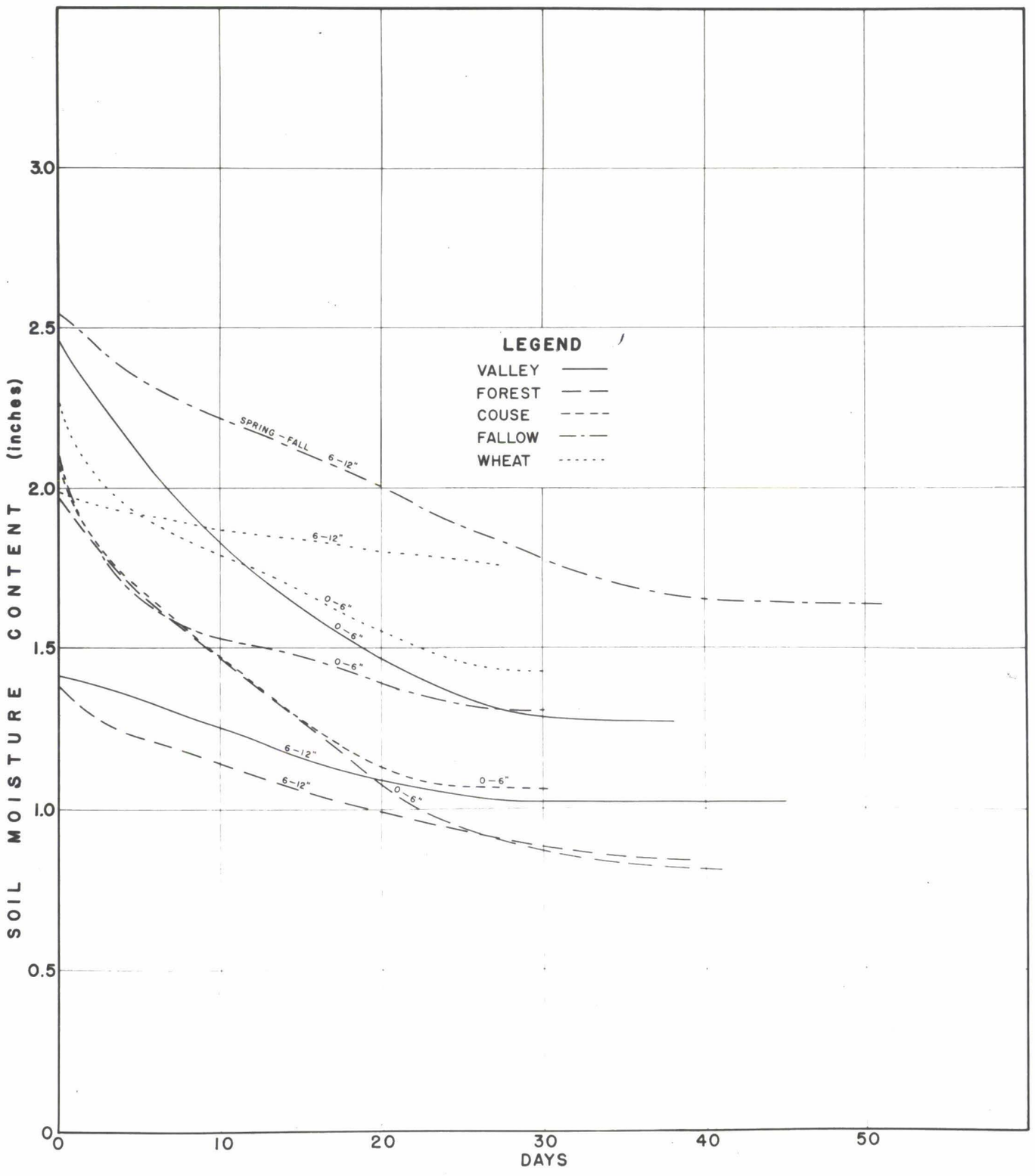

Figure 15. Soil moisture depletion curves for the fall period.

Table 12.--Depletion rate transition dates

Transition	Valley		Forest		Couse		Fallow		Wheat	
	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12
Winter-Spring	-	-	Apr.10	Apr.10	-	-	-	-	-	-
Spring-Summer	May 10	-	June 1	June 1	June 1	June 1	June 1	June 1	June 1	June 1
Summer-Fall	Sept.15	Sept.20	Sept.15	Sept.15	Aug.25	-	Sept.15	Sept.15	Sept.1	Sept.15
Fall-Winter	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15	Oct.15

until approximately the first of June; the summer period commencing the first of June and extending through the growing season until August 25 to September 15; and the fall period commencing the end of the summer depletion period and extending on to the end of October which is the end of record for the Palouse sites. At the Forest site it was deemed advisable to develop separate winter curves which coincide with the spring curve for the first 5 to 20 days but deviate thereafter. On the Fallow plot the spring and fall curves were so much alike that they were incorporated into one combination spring-fall curve.

Most of the depletion curves start at moisture contents at or above the rated field capacity. Exceptions to this are the Fall curves for the 6 to 12 inch depth at Valley, Forest, Couse and Wheat, and the Summer 6 to 12 inch curve at Couse and Wheat. No Fall curve was developed for the 6 to 12 inch depth at Couse since the record shows a continual rise in soil moisture content for the Fall period. In lieu of a curve, depletion was assumed to be zero and predictions were made on that basis.

Generally speaking, depletion rates were greatest in the summer season at both depths. Differences in rates between spring and summer depletion were surprisingly slight at Couse and Fallow. The depletion curves for the 0 to 6 inch depth at Fallow were practically identical. Fall depletion in the 0 to 6 inch depth at Valley and Forest was more rapid than spring depletion at similar moisture contents. On the other hand at Couse, Fallow and Wheat the spring rate of depletion

was greater than the fall rate. The reason for these differences between the sites probably lies in the spring and fall vegetational characteristics.

During all seasons maximum depletion rates generally followed periods of maximum moisture content, especially in the surface 6 inches of soil. In some instances, notably in the 6 to 12 inch layers at Valley and Forest, the tendency was for lower rates of depletion to follow maximum moisture content with higher rates associated with lower moisture contents.

Depletion rates for the 0 to 6 inch depth were greater than or equal to rates for the 6 to 12 inch layer. Differences in the rates are generally greater during the winter, spring and fall periods than in the summer when vegetation is active at all root depths.

Since daily readings were not taken it sometimes became necessary, when estimating soil moisture accretion from a given storm to estimate soil moisture content either immediately before or after a storm by extrapolation of known soil moisture trends. This was accomplished by tracing soil moisture either forward or backwards from an observed value to the date on which the estimate was desired.

SOIL MOISTURE PREDICTION

Predictions of soil moisture were made for each site (Appendix, figures 16 to 25, inclusive) using an initial observed soil moisture content, the daily record of rainfall, the soil moisture depletion relationships and the accretion relationships. Due to complications of high ground water levels, unmeasured supply from snow melt, and frozen soil, soil moisture predictions were not applied to the record

until after these factors had become negligible or could conceivably be accounted for in the accretion formulation procedure. The actual procedure used is described in the report of the Priest River, Idaho soil moisture studies.

The absence of Class II accretion data caused some prediction difficulties associated with the fall rains, especially the heavy, intense storm of September 18. This was the only clearly defined Class II storm during the period of record, and unfortunately, it resulted in an unmeasured amount of surface runoff. In predicting, when the calculated accretion for the 0 to 6 inch layer raised the predicted moisture content above field capacity, the predicted moisture content was considered to be field capacity. For the September 18 storm on the Fallow and Wheat sites, excesses of calculated accretion for the 0 to 6 inch layer were added to the 6 to 12 inch layer accretion. At Couse no additions were made to the 6 to 12 inch moisture content since infiltration capacity seemed to be much lower than at Wheat and Fallow.

The accuracy of the prediction technique can best be determined by comparison of predicted with observed values. The only values available for testing the prediction methods are the values from which the methods were developed. Therefore, some agreement is expected. The comparison should nevertheless provide some indication of expected forecast errors. Deviations of estimated from observed soil moisture contents are shown in table 13. Mean deviation of estimated from observed soil moisture contents averaged .08 inch for the 0 to 6 inch layer and .07 inch for the 6 to 12 inch layer.

Table 13.--Average deviation of estimated from observed soil moisture content

Site	Number of days	Mean Deviation	Mean Deviation	1/ Mean wet inch	% of estimated within range of .00-.10 inch	.11-.20 inch	greater than .20 inch
0"-6" depth							
Valley	123	.09	.10	63	31		6
Forest	119	.12	.10	65	24		21
Couse	97	.05	.04	89	11		0
Fallow 2/	100	.06	.06	84	12		4
Wheat	98	.08	.07	87	15		8
6"-12" depth							
Valley	93	.07	.05	81	14		5
Forest	120	.05	.05	92	8		0
Couse	98	.07	.06	86	5		9
Fallow	99	.06	.06	82	18		0
Wheat	97	.09	.08	73	9		18

1/ Observed moisture above the midpoint between field minimum and field maximum moisture content.

2/ In wet range over entire period of record.

Deviations for the wet range (defined as the moisture range in which the moisture content is above the midpoint between field minimum and field maximum) were generally .01 to .02 inch smaller than deviations for the entire range of moisture content. The average wet range deviation for the 0 to 6 inch layer was .07 inch and .06 inch for the 6 to 12 inch layer.

SUMMARY

Field and analytical soil moisture prediction procedures developed by the Forest Service for the Waterways Experiment Station, U. S. Army, Corps of Engineers at Vicksburg, Mississippi were studied during the period from February 1 to October 20, inclusive, 1954 in the Palouse wheat country near Rockford, Washington on 5 study sites embracing three soils series under various vegetative covers. The Valley site was on Caldwell silt loam devoted to permanent pasture. The Forest site on a noneroded phase of Couse silt loam was dominated by a 30- to 40-year-old stand of Ponderosa pine. The Couse site supported a stand of winter wheat and occurred on an eroded phase of the Couse silt loam. Both the Fallow and Wheat plots were located on a soil which was judged to be an integrade of the Palouse silt loam and Thatuna silt loam. The Fallow plot was kept free of vegetation during the period of record and the Wheat plot supported a stand of winter wheat.

Soil moisture accretion and depletion relationships at each site were developed from records of soil moisture and rainfall. Separate winter, spring, summer, and fall depletion relationships were evolved

where applicable, reflecting the effectiveness of the meteorological and vegetational factors during the seasons in terms of soil moisture losses. The temperature climate is believed to have been nearly normal during the period of record but rainfall was generally deficient during the spring period and excessive to 323 percent of normal during August. Soil moisture accretion and depletion relationships were used to estimate soil moisture for that period of record in which the soil moisture regime was not unduly complicated by snow pack, high ground water level, and frozen surface soil. Average deviation of observed from estimated soil moisture values for the two layers (0-6 inch and 0-12 inch) for all sites was .07 inch of moisture.

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APPENDIX

SOIL DESCRIPTIONS

Valley

Name: Caldwell silt loam, moderately wet phase.

Location: Site No. 4, SW 1/4 of the NE 1/4 of Section 3, Township 23N, Range 45E, E. Willamette Meridian, Spokane, County, Washington (Valley).

Elevation: About 2500 feet above sea level.

Relief: Edge of narrow bottom lands between surrounding hilly areas of Palouse and related soils. Site located on rise about 6 feet above the level of the creek bottom proper, about 200 feet from the creek channel. The slope is nearly level, about 1 percent with concave, smooth relief.

Vegetation: Native and introduced species of grasses.

Drainage: Fairly well drained in summer, water table at 56" August 12, 1954. Poorly drained in early spring and late winter.

Erosion: None.

Parent material: Alluvium from creek and surrounding hill channels.

Climate: Cold winters with much snow. Cool summers, rather warm days and cold nights. Frost occurs at any time during summer, precipitation about 22" per year. Subject to additional moisture from seepage water. Also runoff from higher lying fields may add to water problem.

Profile:

No. 1 0-2" Grayish-brown when dry (10Yr 5/2) darker when wet, silt loam. Moderate grade, fine platy structure, slightly hard when dry, non-sticky when wet, non-plastic when wet, friable when moist; pH is 7.0. Abrupt smooth boundary to next layer.

No. 2 2-8" Dark grayish-brown when dry (10Yr 4/2) darker when wet, silt loam. Moderate grade, medium subangular blocky to coarse granular structure, slightly hard when dry, non-sticky when wet, non-plastic when wet; pH 6.6. (May be plow layer) Grades into next layer with an abrupt smooth boundary.

No. 3 8-27" Grayish-brown (10Yr 5/2) when dry, darker when wet, silt loam. Weak grade, coarse prismatic structure, breaking into fine to medium plates upon pressure. A few fine sandy lenses 1/4 to 1/2" thick present. Slightly mottled with iron stains in part. Slightly hard when dry, non-sticky when wet, friable when moist; pH 6.8. Grades with an abrupt smooth boundary into the next layer.

No. 4 27-37" Very dark gray to nearly black when moist (10YR 3/1) silt loam. Weak grade, coarse prismatic structure, friable when moist, slightly sticky when wet, slightly plastic when wet. This layer is evidently always moist or wet throughout the year; pH about 7.0.

No. 5 37-56" About same color and texture as layer No. 4, but having less structure, being wetter and more sticky. Water table and fine gravel mixed with silt and clay encountered at 56", non-calcareous throughout. This layer also contains a few angular basalt gravel 1/2 to 1-1/2 inches in size at about the 37 to 40" depth; pH reading not taken.

Remarks: This soil differs from the true Caldwell in that the silty clay loam deep substratum is locally absent. Probably at this site it is transitional to the St. Joe soils of the higher valleys. It appears to be a two story soil as the dark layer at 27" deep may have been the surface soil at one time.

Forest

Name: Couse silt loam, non-eroded.

Location: Site No. 3, NE 1/4 of the SE 1/4 of Section 27, Township 23N, Range 45E, E. Willamette Meridian, Spokane County, Washington (Forest).

Elevation: About 2600 feet above sea level.

Relief: Gently sloping to rolling hills, convex, complex slopes, about 10 percent to the south.

Vegetation: Ponderosa pine, both old and second growth. The land had never been cultivated, understory of native grasses and shrubs.

Drainage: Well drained surface, slow internal drainage at 27", infiltration of surface, soil good, B horizon very slow, ground water deep, perched water table in spring of year.

Parent material: Probably loess of the Palouse formation.

Climate: Cold winters and cool summers with hot days and cool nights. Precipitation about 22"+ per year. Heavy snowfall during winter months.

Profile:

A00 1-0" One inch layer of duff containing pine needles, leaves, twigs, etc., loose and brittle.

A_{11} 0-2" Grayish-brown (10YR 5/2) when dry silt loam, moderate, medium platy structure, slightly hard when dry, non-sticky when wet, non-plastic; pH 6.6. Fairly high in organic matter. Abrupt smooth boundary to next layer.

A_{12} 2-22" Grayish-brown (10YR 5/2) when dry (10YR 3/2) very dark grayish-brown when moist silt loam. Weakly prismatic, medium grade, breaking into moderate medium subangular blocky structure. Hard when dry, slightly sticky when wet, slightly plastic when wet, friable to very firm when moist; pH 6.8. Fairly high in organic matter. An abrupt smooth boundary to the next layer.

A_2 22-27" Light brownish-gray (10YR 6/2) when dry, darker when wet, coarse silt loam. Massive in structure, breaks on pressure to structureless mass when dry, slightly hard when dry, non-sticky, non-plastic when wet; pH 7.4. A few clay coatings on cleavage planes between soil peds. Grades with an abrupt irregular boundary to next layer.

B_{21} 27-33" Dark brown (7.5YR 3/2) when dry heavy silt loam or silty clay loam. The top 3 inches of the structure is columnar, with some rounded caps coated with pale brown to gray silt. Mottles in this layer are pale brown to gray, about (10YR 6/2) when dry. The structure of this layer is strong, medium sized prismatic. The aggregates are hard when dry and sticky when wet, plastic when wet. Clay coatings are evident on the lower part of this layer; pH is about 7.0. Grades with a gradual wavy boundary into the next layer.

B_{22} 33-40" Dark brown (7.5YR 4/4) when moist, heavy silt loam or silty clay loam. Strong grade, very fine prismatic to medium subangular blocky structure. Hard when dry, sticky when wet, plastic when wet; pH 7.2. Gradual wavy boundary to next layer.

B_{23} 40"+ Below 40". The material is dense, fairly compact silty clay loam, some iron-manganese shot found in the two lower layers. No C horizon found at this depth.

Remarks: No stones or angular gravel found. Some iron-manganese concretions evident in B horizon. Surface soil inclined to be super-saturated in early spring, very dry late in summer.

This profile fits the Couse description fairly well. The depth to the B horizon is almost identical with the official description.

Couse

Name: Couse silt loam, eroded phase.

Location: Site No. 2, SW 1/4 of the SE 1/4 of Section 27, Township 23N, Range 45E, E. Willamette Meridian, Spokane County, Washington.

Elevation: About 2700 feet above sea level.

Relief: Seven percent southeast slope on point of ridge. The general area has convex slopes with a complex pattern.

Vegetation: Wheat, in wheat-fallow rotation. Original vegetation may have been open Ponderosa pine with Idaho fescue, bluebunch wheatgrass, shrub understory. Ponderosa pine remnants were found at 2-foot depth.

Drainage: Good surface, very slow to slow internal drainage below 32". Ground water at about 100 feet. Perched water table in spring of year.

Erosion: Some surface soil has been lost by erosion. Possibly 8 to 10 inches of the original surface may have been lost as compared with the profile No. 3 in the forested area.

Parent material: Probably loess of the Palouse formation:

Climate: Cold winters and cool summers with hot days and cool nights. Precipitation about 22"+ per year with heavy snow cover during the winter months. The summers are dry with less than 6 inches of moisture falling during the warm season.

Profile:

A_p 0-6" Grayish-brown (10YR 5/2) when dry to very dark grayish-brown (10YR 3/2) when moist silt loam. Appears to be low in organic matter. Structure is coarsely-granular to weak fine subangular blocky, slightly hard when dry, non-sticky when wet; pH is 6.4. Clear smooth boundary to next layer.

A_{12} 6-14" Light brownish-gray and dark grayish-brown (10YR 6/2 and 10YR 4/2.5) mottled silt loam. Moderate grade, medium sized subangular blocky structure, slightly hard when dry, slightly sticky when wet; pH is 6.8. Diffused wavy boundary to the next layer.

A_2 14-17" About a 3" layer of pale brown to brown when moist, mottled silt loam, rather coarse in texture. Massive or moderately fine prismatic structure, moderate grade, slightly hard when dry, non-sticky when wet; pH about 6.4. Clear smooth boundary to the next layer.

B_2 (A_2) 17-32" Pale brown (10Yr 6/3) and dark brown (10YR 3/3) when moist, mottled silt loam or silty clay loam. Moderate grade, medium to coarse prismatic structure when dry, slightly sticky when wet; pale brown layer pH 7.3 and brown layer pH 6.6. Darker brown layers are in bands with coarse pale brown to gray silt layers in between. Clear smooth boundary. Some clay coatings evident in the dark brown silt clay loam. A few clay coatings evident.

B_{22} 32-40" Dark yellowish-brown (10YR 4/4) when moist, silty clay loam. Massive to weak subangular blocky structure, dense firm consistency when moist, plastic when wet, sticky when wet. Clay coatings on edges of aggregates in evidence. Hard iron-manganese concretions from 1/4 to 3/4 inches in diameter scattered throughout this layer; pH 7.2. Diffused wavy boundary to the next layer.

B_{23} or B_3 40-60" Dark yellowish-brown to yellowish-brown, moderately friable silty clay loam containing iron-manganese shot size structure, subangular blocky, fairly hard when dry, sticky when wet. Only a very few thin clay coatings evident; pH not taken.

Remarks: The C horizon was not reached at 60 inches. What was designated as B_{21} contained brown streaks of finer textured material in horizontal bands 1-1/2 inches to 2 inches thick, one above the other. Gray brown silt lay in between these bands. The bands were not continuous. Clay coatings were first seen in the 17-32" layer and increased to about 40", then became less prominent. Streaks of the pale brown silt when moist carried down in irregular deposits and streaks into the 17-32" layer.

Surface soil inclined to be saturated in early spring, dry in late summer.

Fallow & Wheat Sites

Investigators: Frank Taylor, Ray Chapin, Robert Gerdes, Joe Williams, SCS and Ray Boyd, Jake Holland, Forest Service, August 12, 1954.

Name: Palouse-Thatuna Intergrade.

Location: Site No. 1, NE 1/4 of the SW 1/4 of Section 6, Township 22N, Range 45E, E. Willamette Meridian, Spokane County, Washington.

Elevation: About 2600 feet above sea level.

Relief: Short northwest slope about 10 to 12 percent. The general area has convex slopes and the slope pattern is complex.

Vegetation: Now in wheat. This area has been in wheat-sweet clover pea rotation for many years. The original vegetation was an Idaho fescue, bluebunch wheatgrass climax.

Drainage: Well drained on surface, internal drainage, slow to moderately slow. Infiltration of surface soil moderate to good.

Erosion: Ground water very deep, possibly a few inches of deposition may have occurred.

Parent material: Probably loess of the Palouse formation.

Climate: Cold winters and cool summers with hot days and cool nights. Precipitation about 20 inches per year, mostly in fall and spring with winter snowfall about 5 inches and rainfall about 15 inches. Dry summers with little precipitation, less than 6 inches of moisture actually comes in the warm season of the year.

Profile:

A_{1p} 0-7" Very dark gray to black (10YR 2/1) when moist, or (10YR 4/1) dry silt loam in the plow layer. This has a fine-granular structure of medium grade, slightly hard when dry and slightly sticky when wet. The organic matter appears to be quite good. The pH was 6.4 taken with the Lamotte field test indicators. This changes abruptly to the next layer.

A_{12} 7-15" This layer is dark gray (10YR 4/1.5) when dry and (10YR 2/1) when moist silt loam, with a coarse-granular weak to subangular structure, fine grade friable when moist, slightly sticky when wet, slightly hard when dry; pH about 6.8. This has a clear smooth boundary to the next layer.

A_{13} 15-27" Very dark grayish-brown when moist (10YR 3/2) silt loam, with a coarse-granular to weak subangular blocky, medium grade structure. Friable when moist, slightly sticky when wet, slightly hard when dry; pH 6.6. The boundary to the next layer is gradual and wavy.

A_3 (or A_2) 27-32" Brown to dark brown when moist, (10YR 5/3 and 10YR 4/3) lighter brown when dry, mottled coarse silt loam, with a massive to weak fine subangular structure, very friable when moist, slightly sticky in the darker colored parts when wet, non-sticky in the lighter colored parts; pH 6.8. This grades with a clear wavy boundary into the next layer. A few clay coatings in the lumps of dark brown heavy silt loam are still evident in the A_2.

B_2 (or A_2) 32-39" This layer is mottled brown to dark brown (10YR 4/3 to 10YR 3/3) when moist heavy silt loam. The darker streaks are finer in texture. The structure in medium to coarse prismatic of moderately grade breaking into medium angular blocky upon pressure. The consistency is slightly hard when dry, slightly sticky when wet; pH is 6.8. Boundary to the next layer is clear and wavy. Clay coatings are very prominent in the dark parts of this layer.

B_{22} 39-50"+ This layer is dark brown (10YR 4/3) when moist, silty clay loam. The structure is coarse prismatic of medium grade. The consistency of the aggregates is hard, sticky when wet; pH 6.8. Clay coatings are very prominent in the cleavage planes on most faces of aggregates in this layer.

Remarks: The C horizon was not found to a depth of 60 inches when investigated further with the orchard auger. Due to the prismatic structure the soil is probably moderately to slowly permeable to water. Plant roots were not evident in any great quantities below 32 inches.

Clay coatings were evident in the 27-32" layer, more evident in the 32-39" layer and very prominent in the layer below 39 inches. The bulk density may increase with depth as evidenced by the compact condition of the material below 39 inches.

A very few iron-manganese shot were seen in the 39-50"+ layer also. This pH range is right for Thatuna to 50" depth as found by Fred Lotspeich in his 1952 paper on the study of Palouse Catena.

Table 14.--Hydrometeorological factors, Valley site,

February 2, 1954 to April 13, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE VALLEY

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)				TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2									
Apr	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
14	1.50	1.22	2.72	1.31	1.66	2.97	1.57	1.22	2.79	1.39	1.34	2.73	2.76	2.85	41	42	41	42	42	42	41	41									1240
16	1.51	1.22	2.73	1.28	1.59	2.87	1.55	1.24	2.79	1.38	1.32	2.70	2.76	2.78	38	39	39	41	40	40	40	40									0820
19	1.51	1.22	2.73	1.26	1.47	2.73	1.54	1.21	2.75	1.36	1.30	2.66	2.74	2.70	42	43	42	43	43	44	43	42									1045
21	1.50	1.20	2.70	1.25	1.45	2.70	1.52	1.20	2.72	1.35	1.28	2.63	2.71	2.66	39	40	41	42	42	41	41	42	.05	.05							0935
23	1.46	1.17	2.63	1.21	1.40	2.61	1.54	1.19	2.73	1.32	1.27	2.59	2.68	2.60	42	42	42	42	46	43	42	42									1110
26	1.49	1.19	2.68	1.21	1.28	2.49	1.48	1.19	2.57	1.33	1.26	2.59	2.62	2.54	39	40	40	42	41	42	41	41	.09	.09							1025
27	1.58	1.26	2.84	1.30	1.31	2.61	1.57	1.24	2.81	1.37	1.30	2.67	2.82	2.64	41	41	41	42	42	42	41	41	.30	.30							0850
28	1.50	1.19	2.69	1.23	1.30	2.53	1.50	1.20	2.70	1.33	1.26	2.59	2.70	2.56	39	42	42	42	42	42	42	42	T	T							0900
30	1.47	1.17	2.64	1.20	1.29	2.49	1.47	1.19	2.66	1.31	1.25	2.56	2.65	2.52	36	37	38	40	38	38	38	40									0915
Mean	1.52	1.23	2.75	1.29	1.50	2.79	1.55	1.22	2.77	1.38	1.34	2.72	2.76	2.75	39.5			40.4	40.8			39.8									
																					TOTAL		1.31	1.31							
May																															
3	1.51	1.15	2.66	1.18	1.25	2.43	1.43	1.18	2.61	1.30	1.23	2.53	2.64	2.48	43	43	42	42	43	42	42	42									1000
5	1.44	1.15	2.59	1.18	1.25	2.43	1.42	1.18	2.60	1.30	1.24	2.54	2.60	2.48	46	45	44	44	46	45	43	43	.02	.02							1015
7	1.43	1.13	2.56	1.15	1.24	2.39	1.38	1.15	2.53	1.28	1.22	2.50	2.54	2.46	46	46	46	46	46	46	45	45									0820
10	1.40	1.10	2.50	1.14	1.21	2.35	1.45	1.14	2.59	1.28	1.20	2.48	2.54	2.42	51	51	49	48	51	52	48	47	.01	.01							1335
12	1.46	1.14	2.60	1.16	1.22	2.38	1.42	1.17	2.59	1.30	1.22	2.52	2.60	2.45	44	46	46	47	46	47	46	46	.23	.23							0900
13	1.43	1.12	2.55	1.15	1.22	2.37	1.37	1.16	2.53	1.28	1.21	2.49	2.54	2.43	44	45	45	46	45	45	45	46									0900
14	1.39	1.09	2.48	1.13	1.20	2.33	1.31	1.13	2.44	1.26	1.20	2.46	2.46	2.40	46	46	46	47	46	46	46	46									0915
17	1.26	1.01	2.27	1.06	1.18	2.24	1.20	1.06	2.26	1.20	1.15	2.35	2.26	2.30	53	52	51	51	52	50	49	49									0940
19	1.17	.92	2.09	1.01	1.16	2.17	1.12	.97	2.09	1.16	1.12	2.28	2.09	2.22	56	56	55	54	54	54	52	52									0845
20	1.07	.86	1.93	.98	1.14	2.12	1.06	.92	1.98	1.12	1.11	2.23	1.96	2.18	59	56	54	54	55	54	52	52									1150
21	1.05	.84	1.89	.97	1.13	2.10	1.06	.88	1.94	1.10	1.10	2.20	1.92	2.15	52	52	52	53	53	52	52	51									1025
22	1.07	.82	1.89	.96	1.12	2.08	1.07	.87	1.94	1.10	1.10	2.20	1.92	2.14	47	51	52	52	49	51	51	51	.06	.06							0605
24	.98	.78	1.76	.94	1.11	2.05	1.01	.83	1.84	1.07	1.07	2.14	1.80	2.10	55	54	52	52	54	53	52	52									0940
25	1.44	.94	2.38	.95	1.10	2.05	1.30	.97	2.27	1.15	1.07	2.22	2.32	2.14	53	53	52	53	53	53	52	52	.71	.71							1410
27	1.44	1.00	2.44	1.01	1.11	2.12	1.32	1.03	2.35	1.17	1.08	2.25	2.40	2.18	44	45	46	48	46	47	48	49	.32	.32							0915
28	1.41	.99	2.40	1.00	1.10	2.10	1.28	1.02	2.30	1.18	1.09	2.27	2.35	2.18	47	47	48	49	48	48	47	48	.06	.06							0905
30	1.28	.94	2.22	.98	1.11	2.09	1.17	.95	2.12	1.14	1.08	2.22	2.17	2.15	53	53	52	52	52	52	51	51									1135
Mean	1.31	1.00	2.31	1.06	1.17	2.22	1.26	1.04	2.29	1.20	1.15	2.34	2.30	2.28	49.4			49.3	49.4		48.4										
																					TOTAL		1.41	1.41							
June																															
1	1.66	1.07	2.73	1.06	1.11	2.17	1.55	1.10	2.65	1.20	1.09	2.29	2.69	2.23	46	46	47	49	47	48	48	49	.62	.62							1010
2	1.44	1.04	2.48	1.06	1.11	2.17	1.30	1.07	2.37	1.19	1.09	2.28	2.42	2.22	47	47	47	49	48	48	47	49									0905
4	1.55	1.06	2.61	1.06	1.12	2.18	1.46	1.08	2.54	1.20	1.10	2.30	2.58	2.24	53	52	52	52	52	52	51	51	.43	.43							1435
7	1.53	1.06	2.59	1.07	1.12	2.19	1.42	1.07	2.49	1.19	1.11	2.30	2.54	2.24	47	48	48	49	49	50	49	50	.34	.34							0945
8	1.45	1.05	2.50	1.05	1.12	2.17	1.31	1.07	2.38	1.18	1.12	2.30	2.44	2.24	49	49	49	50	50	50	49	49	T	T							0900

[1] a = artifficial precipitation

Table 15.--Hydrometeorological factors, Valley site,

April 14, 1954 to June 8, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE VALLEY

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)				TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2									
June	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
9	1.37	1.00	2.37	1.04	1.12	2.16	1.24	1.03	2.27	1.17	1.10	2.27	2.32	2.22	52	52	51	51	52	52	51	51									0910
10	1.34	.98	2.32	1.02	1.12	2.14	1.20	.99	2.19	1.16	1.09	2.25	2.26	2.20	53	53	52	52	54	54	52	52	.02	.02							1100
11	1.26	.94	2.20	1.01	1.11	2.12	1.13	.95	2.08	1.12	1.09	2.21	2.14	2.16	59	55	52	52	57	55	52	51									1435
12	1.21	.90	2.11	.98	1.12	2.10	1.11	.90	2.01	1.12	1.08	2.20	2.06	2.15	59	57	54	52	58	58	53	52									1635
14	1.15	.87	2.02	.95	1.10	2.05	1.07	.86	1.93	1.08	1.07	2.15	1.98	2.10	52	53	53	53	52	53	52	52	T	T							0835
16	1.19	.85	2.04	.94	1.09	2.03	1.09	.82	1.91	1.06	1.05	2.11	1.98	2.07	53	52	52	52	55	54	52	52	.16	.16							1300
18	1.07	.79	1.86	.91	1.07	1.98	1.02	.81	1.83	1.04	1.04	2.08	1.84	2.03	47	48	49	51	50	50	49	50									0925
20	.94	.72	1.66	.86	1.06	1.92	.94	.79	1.73	1.00	1.02	2.02	1.70	1.97	52	53	53	53	52	52	52	52									0745
22	.72	.58	1.30	.80	1.04	1.84	.82	.77	1.59	.95	1.00	1.95	1.44	1.90	58	54	52	53	58	55	52	52									1120
23	.64	.53	1.17	.76	1.01	1.77	.78	.75	1.53	.91	.99	1.90	1.35	1.84	54	52	52	53	55	53	52	52									1035
25	.55	.45	1.00	.68	.96	1.64	.66	.72	1.38	.84	.97	1.81	1.19	1.72	56	53	52	53	57	54	52	52									1055
27	.52	.42	.94	.63	.89	1.52	.62	.68	1.30	.79	.95	1.74	1.12	1.63	57	56	54	54	58	57	55	54	.08	.08							1145
28	.52	.41	.93	.60	.82	1.42	.61	.66	1.27	.75	.94	1.69	1.10	1.56	54	54	53	53	55	55	53	53	T	T							1325
30	.48	.38	.86	.55	.74	1.29	.56	.62	1.18	.68	.92	1.60	1.02	1.44	55	54	53	53	55	55	53	53									0930
Mean	1.08	.79	1.88	.90	1.04	1.94	1.05	.88	1.93	1.03	1.04	2.08	1.90	2.01	52.8			51.8	53.4			51.4									
																					TOTAL		1.65	1.65							
July																															
2	.68	.39	1.07	.53	.68	1.21	.83	.60	1.43	.66	.92	1.58	1.26	1.40	52	53	53	53	54	54	53	53	.39	.39							0855
3	.59	.38	.97	.51	.64	1.15	.80	.59	1.39	.65	.90	1.55	1.18	1.35	58	54	53	53	58	55	53	53									1145
6	.44	.36	.80	.46	.52	.98	.54	.54	1.08	.54	.84	1.38	.98	1.18	59	57	56	56	59	57	56	55									1005
7	.40	.34	.74	.44	.49	.93	.49	.50	.99	.51	.80	1.31	.86	1.12	60	59	58	57	59	59	57	56									0910
9	.37	.33	.70	.42	.46	.88	.44	.49	.93	.48	.74	1.22	.82	1.05	57	58	57	57	59	56	54	54	.11	.11							0900
11	1.22	.33	1.55	.41	.46	.87	1.14	.49	1.63	.48	.72	1.20	1.59	1.04	54	56	56	56	56	57	56	56	.69	.69							0715
12	.89	.36	1.25	.40	.45	.85	.97	.54	1.51	.47	.69	1.16	1.38	1.00	66	62	57	56	65	61	58	56									1430
14	.84	.39	1.23	.40	.45	.85	.92	.57	1.49	.47	.70	1.17	1.36	1.01	63	62	60	60	62	60	59	59									0935
16	.77	.41	1.18	.40	.45	.85	.85	.54	1.39	.47	.70	1.17	1.28	1.01	63	62	62	62	63	61	60	60									0850
19	.65	.40	1.05	.39	.44	.83	.66	.46	1.12	.45	.67	1.12	1.08	.98	68	65	63	62	69	64	61	60									1120
21	.61	.39	1.00	.39	.44	.83	.62	.45	1.07	.44	.66	1.10	1.04	.96	59	62	62	62	59	60	60	60									0935
23	.58	.39	.97	.40	.44	.84	.56	.43	.99	.44	.65	1.09	.98	.96	59	58	58	60	59	58	57	58									0910
26	.50	.38	.88	.38	.44	.82	.43	.40	.83	.42	.60	1.02	.86	.92	61	61	61	62	60	59	60	60									0840
28	.46	.36	.82	.38	.44	.82	.38	.37	.75	.41	.57	.98	.78	.90	59	59	60	61	59	59	58	58									0915
30	.42	.35	.77	.38	.43	.81	.36	.36	.72	.40	.53	.93	.74	.87	62	61	61	61	60	59	58	59									0940
Mean	.63	.37	1.00	.42	.48	.90	.67	.49	1.16	.49	.71	1.20	1.08	1.05	60.0			59.1	60.1			57.1									
																					TOTAL		1.19	1.19							
Aug.																															
2	.36	.33	.69	.37	.43	.80	.30	.35	.65	.39	.47	.86	.67	.83	66	63	62	62	64	61	60	60									1030
4	.34	.32	.66	.37	.43	.80	.30	.33	.63	.38	.45	.83	.64	.82	56	57	59	61	56	56	57	58									0900

[1] a = artificial precipitation

Table 16.--Hydrometeorological factors, Valley site,

June 9, 1954 to August 4, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE VALLEY

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Aug.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
6	.30	.32	.62	.36	.43	.79	.29	.33	.62	.37	.41	.78	.62	.78	62	62	62	62	60	60	59	59									0900
9	.27	.31	.58	.36	.42	.78	.26	.31	.57	.36	.37	.73	.58	.76	62	62	62	62	60	59	59	59									0940
11	.25	.30	.55	.35	.42	.77	.25	.29	.54	.35	.33	.68	.54	.72	63	61	60	60	62	59	57	58									1100
13	.24	.30	.54	.36	.42	.78	.25	.29	.54	.34	.31	.65	.54	.72	57	59	60	61	57	59	60	61									0750
16	.40	.30	.70	.36	.42	.78	.36	.38	.76	.35	.34	.69	.73	.74	59	59	59	59	59	59	58	58	.48	.48							0950
17	.48	.30	.78	.36	.42	.78	.54	.43	.97	.36	.35	.71	.88	.74	70	65	62	60	69	63	60	59	.06	.06							1445
19	.50	.31	.81	.36	.42	.78	.59	.39	.98	.37	.34	.71	.90	.74	61	61	60	60	60	60	58	58									1010
20	.50	.31	.81	.36	.42	.78	.58	.39	.97	.37	.34	.71	.89	.74	62	61	59	59	61	60	58	58	.14	.14							1400
21	.52	.32	.84	.36	.42	.78	.58	.40	.98	.37	.34	.71	.91	.74	60	59	58	58	58	58	58	58	T	T							1215
23	.51	.32	.83	.36	.42	.78	.56	.40	.96	.37	.34	.71	.90	.74	57	57	57	57	60	59	57	57	.05	.05							0840
24	.71	.32	1.03	.36	.42	.78	.94	.42	1.36	.38	.35	.73	1.20	.76	59	57	56	57	59	58	55	55	.54	.54							1445
26	.98	.42	1.40	.37	.42	.79	1.07	.50	1.57	.38	.35	.73	1.48	.76	58	57	55	55	58	57	56	54	.16	.16							1540
30	.95	.53	1.48	.36	.42	.78	.92	.58	1.50	.38	.34	.72	1.49	.75	58	58	58	58	59	58	57	57									0935
31	.98	.52	1.50	.36	.42	.78	1.03	.59	1.62	.39	.35	.74	1.56	.76	59	59	59	59	60	59	58	58	.36	.36							1040
Mean	.52	.35	.86	.36	.42	.78	.55	.40	.95	.37	.36	.73	.91	.76	60.6			59.4	60.1			57.9									
																					TOTAL		1.79	1.79							
Sept.																															
2	.93	.54	1.47	.37	.42	.79	.95	.60	1.55	.39	.35	.74	1.51	.76	53	54	55	57	54	54	54	54									0855
3	.87	.54	1.41	.38	.42	.80	.91	.60	1.51	.40	.36	.76	1.46	.78	52	57	57	58	59	59	57	58	.10	.10							1017
6	.68	.50	1.18	.38	.42	.80	.78	.57	1.35	.40	.35	.75	1.26	.78	57	53	52	52	57	54	52	52									1300
8	.60	.47	1.07	.38	.42	.80	.71	.56	1.27	.40	.35	.75	1.17	.78	48	49	51	52	50	50	50	52									0850
10	.48	.41	.89	.37	.42	.79	.53	.50	1.03	.40	.32	.72	.96	.76	65	61	56	54	62	60	55	53									1530
13	.44	.39	.83	.38	.42	.80	.45	.45	.90	.38	.33	.71	.86	.76	48	50	52	53	50	50	50	52	.02	.02							0855
16	.76	.37	1.13	.38	.42	.80	.88	.41	1.29	.38	.33	.71	1.21	.76	50	51	52	52	50	51	51	52	.47	.47							0900
17	1.02	.37	1.39	.38	.42	.80	1.03	.41	1.44	.38	.33	.71	1.42	.76	50	52	52	52	51	52	52	52	.28	.28							0915
18	1.42	1.09	2.51	.79	.42	1.21	1.39	1.00	2.39	1.02	.34	1.36	2.45	1.28	52	52	51	52	53	52	51	51	1.44	1.44							1230
20	1.38	1.01	2.39	.80	.42	1.22	1.28	.91	2.19	1.02	.33	1.35	2.29	1.38	49	49	50	52	50	50	49	50									1055
22	1.31	.95	2.26	.78	.43	1.21	1.23	.86	2.09	.98	.34	1.32	2.18	1.42	49	50	51	52	49	50	50	50									0930
24	1.25	.89	2.14	.77	.44	1.21	1.15	.82	1.97	.94	.36	1.30	2.06	1.40	49	49	49	51	49	49	49	50									1015
27	1.12	.78	1.90	.74	.44	1.18	1.01	.78	1.79	.85	.35	1.20	1.84	1.34	47	48	49	51	49	49	49	50									1000
29	1.08	.78	1.86	.72	.45	1.17	.97	.77	1.74	.81	.35	1.16	1.80	1.32	42	44	45	47	44	44	45	46	.02	.02							1030
Mean	.95	.65	1.60	.54	.43	.97	.95	.66	1.61	.62	.44	1.07	1.60	1.02	50.8			52.5	51.9			51.6									
																					TOTAL		2.33	2.33							
Oct.																															
2	1.00	.74	1.74	.69	.45	1.14	.94	.76	1.70	.75	.63	1.38	1.72	1.26	37	39	40	43	38	39	40	42									0920
4	.90	.69	1.59	.66	.45	1.11	.91	.75	1.66	.72	.62	1.34	1.62	1.22	45	44	42	43	46	44	42	42									1440
8	.74	.62	1.36	.61	.45	1.06	.86	.73	1.59	.65	.60	1.25	1.48	1.16	45	45	46	46	46	46	45	45									1025

[1]a = artificial precipitation

Table 17.--Hydrometeorological factors, Valley site,

August 6, 1954 to October 8, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE VALLEY

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPI-TATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXI-MUM	MINI-MUM	MEAN	DEG. DAYS			
Oct.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
11	.69	.58	1.27	.58	.44	1.02	.83	.71	1.54	.62	.58	1.20	1.40	1.11	43	43	45	45	45	45	45	45	.06	.06							0925
15	.65	.53	1.18	.55	.44	.99	.80	.68	1.48	.57	.56	1.13	1.33	1.06	37	38	39	41	38	39	39	41									0930
20	.64	.49	1.13	.52	.44	.96	.79	.65	1.44	.54	.55	1.09	1.28	1.02	37	40	42	44	38	41	42	43	.15	.15							0800
25	1.38	.86	2.24	.66	.44	1.10	.78	.80	1.58	.96	.56	1.52	1.91	1.31	34	36	37	39	35	36	37	38	1.24	1.24							1120
Mean	.86	.64	1.50	.51	.44	1.06	.85	.73	1.57	.69	.59	1.27	1.54	1.16	39.7			43.0	40.9			42.3									
																					TOTAL		1.45	1.45						
Nov.																															
1	1.30	.82	2.12	.66	.45	1.11	1.17	.79	1.96	.94	.60	1.54	2.04	1.32	34	34	35	36	35	34	34	35	.05	.05							1300
9	1.44	.88	2.32	.78	.46	1.24	1.31	.81	2.12	1.07	.70	1.77	2.22	1.50	42	42	42	42	42	42	42	42	.58	.58							-
15	1.50	.98	2.48	1.00	.65	1.65	1.39	.88	2.27	1.12	.82	1.94	2.38	1.80	42	42	41	42	42	42	41	41	.57	.57							1145
Mean	1.41	.89	2.31	.81	.52	1.33	1.29	.83	2.12	1.04	.71	1.75	2.21	1.54	39.3			40.0	39.7			39.0									
																					TOTAL		1.43	1.43						
Dec.																															
7	1.40	.95	2.35	1.00	.81	1.81	1.21	.86	2.07	1.06	.86	1.92	2.21	1.86	30	32	32	33	32	33	32	33	1.17	1.17							0950

[1] a = artificial precipitation

Table 18.--Hydrometeorological factors, Valley site,

October 11, 1954 to December 7, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FOREST

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Feb.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	1.36	1.22	2.58	1.11	1.04	2.15	1.22	1.17	2.39	1.09	1.02	2.11	2.48	2.13	32	34	34	34	33	34	34	34									1005
5	1.32	1.19	2.51	1.09	1.03	2.12	1.19	1.15	2.34	1.07	1.00	2.07	2.42	2.10	32	34	34	34	33	34	34	34									1125
9	1.29	1.18	2.47	1.09	1.02	2.11	1.18	1.14	2.32	1.05	.99	2.04	2.40	2.08	32	34	34	34	33	34	34	35									1100
11	1.26	1.15	2.41	1.08	1.02	2.10	1.16	1.12	2.28	1.04	.97	2.01	2.34	2.06	32	33	34	34	33	34	34	35									
15	1.37	1.36	2.73	1.15	1.07	2.22	1.21	1.19	2.40	1.09	1.01	2.10	2.56	2.16	30	31	31	31	30	31	32	32	.47	.56							
17	1.43	1.28	2.71	1.21	1.13	2.34	1.25	1.19	2.44	1.14	1.04	2.18	2.58	2.26	32	34	34	34	32	34	34	34									1100
19	1.36	1.29	2.65	1.46	1.23	2.69	1.21	1.20	2.41	1.13	1.06	2.19	2.53	2.44	32	34	34	34	34	34	34	35	.12	.13							
22	1.39	1.48	2.87	1.48	1.18	2.66	1.25	1.42	2.67	1.54	1.55	3.09	2.77	2.88	34	34	34	34	34	34	35	36	.36	.40							1140
23	1.32	1.48	2.80	1.49	1.21	2.70	1.21	1.32	2.53	1.31	1.60	2.91	2.66	2.80	34	35	35	34	36	36	36	36									
26	1.28	1.30	2.58	1.27	1.24	2.51	1.17	1.27	2.44	1.23	1.20	2.43	2.51	2.47	35	36	36	36	35	36	36	36									1315
Mean	1.34	1.29	2.63	1.24	1.12	2.36	1.20	1.22	2.42	1.17	1.14	2.31	2.52	2.34	32			34	33			35									
																					TOTAL		.95	1.09							
Mar.																															
1	1.25	1.29	2.54	1.22	1.22	2.44	1.14	1.24	2.38	1.17	1.13	2.30	2.46	2.37	33	34	35	35	33	34	35	36									1140
3	1.18	1.24	2.42	1.18	1.19	2.37	1.10	1.20	2.30	1.15	1.12	2.27	2.36	2.32	32	34	34	34	32	33	34	35									0910
5	1.23	1.24	2.47	1.16	1.13	2.29	1.10	1.19	2.29	1.14	1.10	2.24	2.38	2.26	32	34	34	34	32	33	34	34									1610
8	1.23	1.24	2.47	1.15	1.10	2.25	1.13	1.19	2.32	1.13	1.09	2.22	2.40	2.24	34	36	35	34	34	34	35	36	.08	.07							0930
10	1.30	1.28	2.58	1.21	1.18	2.39	1.18	1.25	2.43	1.19	1.20	2.39	2.50	2.39	36	36	36	36	36	36	36	36	.77	.73							1530
12	1.29	1.28	2.57	1.23	1.19	2.42	1.17	1.24	2.41	1.21	1.19	2.40	2.49	2.41	34	35	35	35	33	35	35	35	.03	.03							0850
15	1.26	1.25	2.51	1.20	1.18	2.38	1.14	1.20	2.34	1.15	1.11	2.26	2.42	2.32	34	35	35	35	34	34	35	36									1420
17	1.25	1.26	2.51	1.18	1.18	2.36	1.15	1.20	2.35	1.14	1.11	2.25	2.43	2.30	36	36	36	36	36	36	36	36	.03	.03							1005
18	1.25	1.25	2.50	1.17	1.17	2.34	1.15	1.19	2.34	1.14	1.11	2.25	2.42	2.30	34	35	35	35	34	36	36	36									1020
19	1.25	1.24	2.49	1.15	1.15	2.30	1.14	1.19	2.33	1.13	1.09	2.22	2.41	2.26	34	36	36	35	35	35	36	36									1450
22	1.27	1.25	2.52	1.16	1.14	2.30	1.15	1.20	2.35	1.16	1.10	2.26	2.44	2.28	37	37	36	36	38	36	36	36	.24	.28							1410
24	1.25	1.23	2.48	1.16	1.14	2.30	1.14	1.18	2.32	1.13	1.08	2.21	2.40	2.26	35	38	37	36	35	36	36	36									0900
26	1.24	1.21	2.45	1.14	1.10	2.24	1.12	1.15	2.27	1.11	1.06	2.17	2.36	2.20	36	37	36	36	36	36	36	36									1430
29	1.16	1.19	2.35	1.10	1.09	2.19	1.08	1.14	2.22	1.08	1.04	2.12	2.28	2.16	33	34	35	35	33	34	35	36									0850
Mean	1.24	1.25	2.49	1.17	1.15	2.33	1.14	1.20	2.33	1.14	1.11	2.25	2.41	2.29	34			35	34			36									
																					TOTAL		1.15	1.14							
Apr.																															
1	1.18	1.17	2.35	1.09	1.06	2.15	1.09	1.11	2.20	1.07	1.03	2 10	2.28	2.12	35	36	35	35	35	35	35	36									1730
2	1.17	1.19	2.36	1.08	1.06	2.14	1.09	1.10	2.19	1.07	1.04	2.11	2.28	2.12	36	36	36	36	36	35	35	35									1130
5	1.20	1.19	2.39	1.08	1.06	2.14	1.14	1.14	2.28	1.10	1.04	2.14	2.34	2.14	37	39	38	37	38	38	38	38	.16	.20							0930
7	1.20	1.19	2.39	1.10	1.07	2.17	1.15	1.16	2.31	1.11	1.04	2.15	2.35	2.16	36	37	37	36	36	36	37	38	.11	.17							0920
9	1.19	1.18	2.37	1.08	1.06	2.14	1.13	1.13	2.26	1.07	1.03	2.10	2.32	2.12	36	36	37	36	36	36	37	37	.02	.05							1030
12	1.19	1.18	2.37	1.06	1.05	2.11	1.11	1.11	2.22	1.06	1.02	2.08	2.30	2.10	39	39	39	38	40	39	38	38									1230
13	1.20	1.18	2.38	1.07	1.06	2.13	1.13	1.11	2.24	1.06	1.02	2.08	2.31	2.10	42	42	40	39	44	42	40	39	.04	.04							1510

[1] a = artificial precipitation

Table 19.--Hydrometeorological factors, Forest site,

February 2, 1954 to April 13, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FOREST

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Apr.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
14	1.18	1.18	2.36	1.07	1.05	2.12	1.12	1.10	2.22	1.06	1.01	2.07	2.29	2.10	39	40	39	39	40	40	40	40									1315
16	1.15	1.16	2.31	1.05	1.04	2.09	1.10	1.08	2.18	1.05	1.00	2.05	2.24	2.07	38	39	39	39	38	39	39	39									0920
19	1.13	1.15	2.28	1.04	1.04	2.08	1.08	1.07	2.15	1.02	.99	2.01	2.22	2.04	41	41	41	40	41	41	41	41	T								1100
21	1.11	1.12	2.23	1.02	1.01	2.03	1.06	1.04	2.10	1.02	.98	2.00	2.16	2.02	39	40	40	40	40	40	40	40	.01	.02							1000
23	1.08	1.10	2.18	.99	1.00	1.99	1.05	1.01	2.06	1.00	.97	1.97	2.12	1.98	43	42	41	40	43	42	41	41									1400
26	1.04	1.07	2.11	.97	.97	1.94	1.00	.97	1.97	.97	.94	1.91	2.04	1.92	39	39	39	39	38	39	39	39	.04	.06							1050
27	1.09	1.08	2.17	.97	.97	1.94	1.10	1.00	2.10	1.00	.94	1.94	2.14	1.94	43	42	41	39	43	41	39	39	.17	.22							1630
28	1.08	1.08	2.16	.97	.97	1.94	1.10	1.01	2.11	.99	.94	1.93	2.14	1.94	39	40	40	39	39	39	39	39									1130
30	1.04	1.06	2.10	.96	.96	1.92	1.06	1.00	2.06	.98	.94	1.92	2.08	1.92	37	38	38	38	37	36	37	38									1135
Mean	1.14	1.14	2.28	1.04	1.03	2.06	1.09	1.07	2.16	1.04	1.00	2.04	2.22	2.05	39			38	39			38									
																					TOTAL		.55	.76							
May																															
3	1.02	1.04	2.06	.94	.94	1.88	1.03	.97	2.00	.97	.93	1.90	2.03	1.89	39	40	39	39	39	39	39	39									1020
5	1.01	1.02	2.03	.92	.93	1.85	1.00	.95	1.95	.96	.90	1.86	1.99	1.86	45	43	42	40	46	42	41	40	.02	.01							1430
7	.99	1.02	2.01	.91	.92	1.83	.97	.92	1.89	.95	.91	1.86	1.95	1.84	43	43	42	42	42	42	42	42									0835
10	.94	.95	1.89	.88	.89	1.77	.89	.86	1.75	.91	.88	1.79	1.82	1.78	47	47	45	44	47	46	45	44	.02	.02							1350
12	.95	.96	1.91	.87	.89	1.76	.95	.87	1.82	.92	.89	1.81	1.86	1.78	43	44	44	43	42	43	43	43	.12	.16							0915
13	.93	.94	1.87	.86	.88	1.74	.93	.87	1.80	.91	.88	1.79	1.84	1.76	44	44	43	43	44	42	42	42									1100
14	.90	.94	1.84	.85	.87	1.72	.91	.86	1.77	.90	.87	1.77	1.80	1.74	45	44	44	43	45	43	43	42									1100
17	.85	.89	1.74	.82	.84	1.66	.82	.79	1.61	.85	.85	1.70	1.68	1.68	50	49	48	47	50	48	47	46									1030
19	.81	.84	1.65	.79	.82	1.61	.74	.76	1.50	.80	.84	1.64	1.58	1.62	52	52	51	49	52	51	51	49									0920
20	.78	.83	1.61	.77	.81	1.58	.71	.70	1.41	.77	.83	1.60	1.51	1.59	54	54	52	50	57	54	52	51									1350
21	.76	.82	1.58	.77	.81	1.58	.70	.71	1.41	.76	.82	1.58	1.50	1.58	51	51	50	49	51	50	49	48									1230
22	.75	.81	1.56	.76	.80	1.56	.69	.70	1.39	.76	.82	1.58	1.48	1.57	48	49	49	48	47	48	49	48	.02	.02							0630
24	.72	.77	1.49	.74	.78	1.52	.62	.66	1.28	.71	.80	1.51	1.38	1.52	51	51	50	48	50	49	49	48									1050
25	.97	.78	1.75	.73	.77	1.50	.74	.98	1.72	.96	.80	1.76	1.74	1.63	50	50	49	48	49	48	48	48	.42	.52							1430
27	.95	.80	1.75	.73	.77	1.50	.96	.90	1.86	.89	.80	1.69	1.80	1.60	44	46	47	47	43	44	45	46	.14	.17							0940
28	.95	.81	1.76	.73	.76	1.49	.95	.88	1.83	.86	.80	1.66	1.80	1.58	44	45	45	45	43	44	45	45	.03	.03							0930
30	.89	.88	1.77	.73	.76	1.49	.92	.84	1.76	.81	.79	1.60	1.76	1.54	48	48	48	47	48	48	47	47									1155
Mean	.89	.89	1.78	.81	.84	1.65	.85	.84	1.69	.86	.85	1.71	1.74	1.68	47			46	47			45									
																					TOTAL		.77	.93							
June																															
1	1.26	.83	2.09	.73	.75	1.48	1.20	.96	2.16	.98	.80	1.78	2.12	1.63	43	45	46	46	41	43	44	45	.58	.70							1030
2	1.15	.88	2.03	.74	.76	1.50	1.15	1.06	2.21	.97	.84	1.81	2.12	1.66	47	47	46	45	47	44	45	45									1100
4	1.30	.98	2.28	.76	.76	1.52	1.22	1.15	2.37	.98	.84	1.82	2.32	1.67	50	50	48	48	50	48	48	48	.43	.40							1500
7	1.27	1.00	2.27	.79	.76	1.55	1.23	1.19	2.42	1.00	.86	1.86	2.34	1.70	46	47	47	47	46	46	47	47	.18	.32							1000
8	1.24	1.01	2.25	.81	.78	1.59	1.20	1.19	2.39	1.01	.88	1.89	2.52	1.74	46	47	47	46	46	46	46	46		T							0920

[1]a = artificial precipitation

Table 20.--Hydrometeorological factors, Forest site,

April 14, 1954 to June 8, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FOREST

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
June	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
9	1.16	.99	2.15	.81	.77	1.58	1.17	1.15	2.32	.99	.88	1.87	2.24	1.72	51	49	48	47	51	48	48	47									1105
10	1.13	.98	2.11	.81	.77	1.58	1.15	1.14	2.29	.98	.88	1.86	2.20	1.72	50	50	50	48	51	50	50	48	.01	.01							1120
11	1.11	.97	2.08	.81	.78	1.59	1.14	1.11	2.25	.98	.87	1.85	2.16	1.72	52	51	50	48	53	50	48	48									1330
12	1.07	.96	2.03	.81	.78	1.59	1.11	1.09	2.20	.97	.87	1.84	2.12	1.72	54	53	51	49	53	51	50	48									1855
14	1.03	.94	1.97	.80	.78	1.58	1.08	1.05	2.13	.94	.86	1.80	2.05	1.69	50	50	50	49	49	50	50	49									0850
16	1.00	.92	1.92	.79	.77	1.56	1.08	1.02	2.10	.92	.86	1.78	2.01	1.67	48	49	49	49	48	48	48	49	.07	.09							1000
18	.94	.87	1.81	.76	.76	1.52	1.04	.96	2.00	.89	.84	1.73	1.90	1.62	48	48	48	48	47	47	48	48									0955
20	.91	.85	1.76	.75	.75	1.50	.98	.90	1.88	.86	.83	1.69	1.82	1.60	49	50	49	49	49	49	49	48									0840
22	.84	.81	1.65	.72	.73	1.45	.90	.81	1.71	.80	.82	1.62	1.68	1.54	56	54	52	50	56	56	51	50									1250
23	.81	.79	1.60	.71	.73	1.44	.86	.81	1.67	.78	.81	1.59	1.64	1.52	55	54	53	51	54	52	52	51									1100
25	.70	.74	1.44	.68	.71	1.39	.77	.76	1.53	.72	.79	1.51	1.48	1.45	56	54	54	52	56	53	53	51									1200
27	.64	.70	1.34	.65	.70	1.35	.74	.71	1.45	.70	.78	1.48	1.40	1.42	56	54	54	53	54	54	53	52	.04	.03							1200
28	.62	.68	1.30	.64	.68	1.32	.71	.69	1.40	.68	.77	1.45	1.35	1.38	52	53	53	53	51	52	52	52	T	.01							1100
30	.58	.63	1.21	.60	.67	1.27	.64	.64	1.28	.64	.74	1.38	1.24	1.32	54	54	53	52	54	53	53	52									1030
Mean	.99	.87	1.86	.74	.75	1.49	1.02	.97	1.99	.88	.83	1.72	1.92	1.60	51			49	50			49									
																					TOTAL		1.31	1.56							
July																															
2	.58	.67	1.25	.66	.66	1.32	.67	.75	1.42	.68	.73	1.41	1.34	1.36	52	52	52	51	52	52	52	52	.26	.28							0930
3	.56	.63	1.19	.62	.65	1.27	.68	.68	1.36	.64	.71	1.35	1.28	1.31	57	54	53	52	53	54	53	52									1325
6	.51	.57	1.08	.55	.62	1.17	.58	.54	1.12	.56	.66	1.22	1.10	1.20	60	58	56	55	59	56	55	54									1025
7	.49	.55	1.04	.52	.60	1.12	.55	.49	1.04	.53	.63	1.16	1.04	1.14	60	59	58	56	60	58	57	55									1020
9	.47	.52	.99	.49	.58	1.07	.51	.45	.96	.51	.60	1.11	.98	1.09	57	57	56	55	56	55	55	54	.05	.06							0920
11	.86	.90	1.76	.85	.66	1.51	.75	.84	1.59	.77	.59	1.36	1.68	1.44	54	54	55	55	54	54	54	54	.51	.55							0740
12	.84	.84	1.68	.79	.67	1.46	.71	.75	1.46	.69	.58	1.27	1.57	1.36	60	58	56	55	59	56	55	54									1210
14	.77	.77	1.54	.71	.66	1.37	.69	.63	1.32	.59	.57	1.16	1.43	1.26	59	58	57	55	59	58	57	55									1010
16	.67	.68	1.35	.64	.62	1.26	.61	.52	1.13	.54	.56	1.10	1.24	1.18	60	60	59	57	59	59	58	57									0950
19	.50	.56	1.06	.52	.55	1.07	.49	.41	.90	.46	.52	.98	.98	1.02	62	60	59	57	63	60	59	58									1230
21	.46	.50	.96	.48	.50	.98	.46	.40	.86	.44	.51	.95	.91	.96	55	56	56	55	55	55	56	56									1045
23	.44	.48	.92	.44	.47	.91	.43	.39	.82	.43	.50	.93	.87	.92	57	56	55	54	59	55	55	55	.01	.02							1130
26	.40	.44	.84	.40	.43	.83	.40	.39	.79	.42	.48	.90	.82	.86	58	59	59	58	57	57	57	56									0900
28	.39	.42	.81	.39	.42	.81	.39	.38	.77	.40	.47	.87	.79	.84	56	56	56	56	55	55	56	56									1000
30	.37	.40	.77	.39	.41	.80	.37	.38	.75	.40	.46	.86	.76	.83	57	57	56	55	57	55	56	55									1030
Mean	.55	.60	1.15	.56	.57	1.13	.55	.53	1.09	.54	.57	1.11	1.12	1.12	58			55	57			55									
																				TOTAL			.83	.91							
Aug.																															
2	.35	.38	.73	.38	.39	.77	.36	.38	.74	.39	.44	.83	.74	.80	60	59	59	57	60	59	58	57									1020
4	.34	.38	.72	.37	.39	.76	.36	.38	.74	.39	.43	.82	.73	.79	54	55	56	56	54	55	56	56									0915

[1] a = artificial precipitation

Table 21.--Hydrometeorological factors, Forest site,

June 9, 1954 to August 4, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FOREST

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPI-TATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXI-MUM	MINI-MUM	MEAN	DEG. DAYS			
Aug.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
6	.33	.36	.69	.37	.38	.75	.35	.37	.72	.39	.44	.83	.70	.79	58	58	57	56	57	56	56	55									0950
9	.32	.36	.68	.36	.38	.74	.34	.37	.71	.39	.40	.79	.70	.76	58	58	58	57	58	57	57	57									1000
11	.30	.35	.65	.36	.37	.73	.34	.36	.70	.38	.39	.77	.68	.75	58	58	57	57	59	56	56	56									1120
13	.29	.34	.63	.36	.37	.73	.34	.36	.70	.38	.38	.76	.66	.74	58	59	59	58	58	58	58	57									0850
16	.30	.35	.65	.37	.36	.73	.34	.36	.70	.38	.38	.76	.68	.74	56	56	56	56	55	55	55	54	.22	.29							1010
17	.31	.35	.66	.37	.37	.74	.35	.37	.72	.38	.38	.76	.69	.75	60	60	59	57	60	57	56	55	.04	.03							1410
19	.32	.35	.67	.37	.36	.73	.35	.37	.72	.38	.37	.75	.70	.74	58	58	57	57	57	57	56	56									1030
20	.32	.35	.67	.37	.36	.73	.36	.38	.74	.38	.37	.75	.70	.74	57	57	56	55	56	55	55	55	.17	.22							1420
21	.32	.36	.68	.36	.36	.72	.38	.38	.76	.38	.37	.75	.72	.74	56	56	56	55	55	54	54	54									1240
23	.35	.35	.70	.36	.36	.72	.41	.38	.79	.38	.37	.75	.74	.74	55	55	55	55	54	54	55	55	.03	.04							0900
24	1.01	.54	1.55	.54	.36	.90	.49	.38	.87	.41	.37	.78	1.21	.84	54	54	54	54	54	54	53	54	.34	.44							1500
26	.96	.61	1.57	.55	.37	.92	.56	.41	.97	.45	.38	.83	1.27	.88	54	54	54	54	54	53	53	53	.07	.08							1530
30	.78	.54	1.32	.49	.37	.86	.56	.40	.96	.43	.38	.81	1.14	.84	57	57	56	55	56	55	55	55	.25	.34							1000
31	.79	.53	1.32	.49	.37	.86	.59	.85	1.44	.47	.39	.86	1.38	.86	57	57	57	56	57	56	56	55									1100
Mean	.46	.41	.87	.40	.37	.77	.40	.41	.81	.40	.39	.79	.84	.78	57			56	56			55									
																					TOTAL		1.12	1.44							
Sept.																															
2	.74	.52	1.26	.48	.37	.85	.59	.63	1.22	.49	.40	.89	1.24	.87	55	56	56	56	54	54	54	54									0915
3	.75	.50	1.25	.46	.38	.84	.58	.56	1.14	.47	.40	.87	1.20	.86	56	58	58	57	55	55	56	55	.07	.08							1000
6	.58	.46	1.04	.42	.37	.79	.56	.42	.98	.44	.40	.84	1.01	.82	55	54	54	53	54	53	54	54									1515
8	.51	.44	.95	.41	.37	.78	.53	.40	.93	.44	.40	.84	.94	.81	52	53	53	53	51	52	52	53									0910
10	.45	.42	.87	.39	.37	.76	.47	.39	.86	.42	.40	.82	.86	.79	60	58	56	54	59	55	54	54									1545
13	.40	.40	.80	.39	.37	.76	.42	.38	.80	.40	.40	.80	.80	.78	52	54	54	54	51	51	52	53	.01	.01							0915
16	.41	.39	.80	.38	.37	.75	.42	.38	.80	.42	.41	.83	.80	.79	52	53	53	54	51	51	51	52	.38	.38							0920
17	.43	.40	.83	.38	.37	.75	.45	.39	.84	.43	.42	.85	.84	.80	51	52	53	53	50	51	51	51	.14	.14							0930
18	.78	.44	1.22	.64	.37	1.01	1.18	.88	2.06	.88	.57	1.45	1.64	1.23	52	52	52	52	50	50	50	51	1.05	1.21							1240
20	.81	.52	1.33	.59	.39	.98	1.07	.84	1.91	.84	.57	1.41	1.62	1.20	52	52	51	51	50	49	50	51									1150
22	.79	.53	1.32	.56	.40	.96	.98	.79	1.77	.79	.56	1.35	1.54	1.16	51	52	52	52	51	51	51	51									0950
24	.76	.53	1.29	.56	.41	.97	.90	.74	1.64	.72	.55	1.27	1.46	1.12	52	52	52	52	51	51	51	51									1030
27	.67	.52	1.19	.53	.42	.95	.81	.68	1.49	.68	.53	1.21	1.34	1.08	54	54	54	53	53	52	53	53									1100
29	.62	.50	1.12	.51	.42	.93	.78	.67	1.45	.63	.52	1.15	1.28	1.04	47	48	49	50	45	47	48	50	.01	.02							1045
Mean	.62	.47	1.09	.48	.38	.86	.70	.58	1.28	.58	.47	1.04	1.18	.95	52			53	52			52									
																					TOTAL		1.66	1.84							
Oct.																															
2	.55	.48	1.03	.49	.42	.91	.68	.61	1.29	.59	.52	1.11	1.16	1.01	44	46	47	48	42	42	44	46									0940
4	.50	.47	.97	.47	.42	.89	.62	.54	1.16	.58	.50	1.08	1.06	.98	48	48	48	47	45	44	45	46									1500
8	.46	.45	.91	.44	.42	.86	.55	.44	.99	.53	.49	1.02	.95	.94	49	49	49	49	48	48	48	48									

[1] a = artificial precipitation

Table 22.--Hydrometeorological factors, Forest site,

August 6, 1954 to October 8, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FOREST

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)				TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2									
	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
Oct.																															
11	.44	.43	.87	.42	.41	.83	.50	.42	.92	.49	.48	.97	.90	.90	47	48	48	48	46	47	48	48	.02	.03							1050
15	.41	.42	.83	.40	.40	.80	.47	.40	.87	.46	.48	.94	.85	.87	43	44	45	45	41	42	43	44									1010
20	.41	.40	.81	.39	.40	.79	.45	.39	.84	.42	.46	.88	.82	.84	42	45	46	46	41	43	45	46	.05	.07							0830
25	.63	.64	1.27	.70	.54	1.24	.72	.81	1.53	.69	.54	1.23	1.40	1.24	42	42	42	43	41	42	42	43	.92	.90							1350
Mean	.48	.47	.96	.47	.43	.90	.57	.52	1.08	.54	.50	1.03	1.02	.97	45			46	43			46									
																					TOTAL		.99	1.00						
Nov.																															
1	.66	.59	1.25	.60	.51	1.11	.71	.45	1.16	.63	.52	1.15	1.20	1.13	40	41	41	41	39	39	39	41	.01	T							1320
9	1.11	.62	1.73	.62	.49	1.11	1.10	.52	1.62	.72	.54	1.26	1.68	1.18	43	44	44	44	43	43	43	43	.44	.47							
15	1.29	.65	1.94	.62	.49	1.11	1.20	.67	1.87	.73	.54	1.27	1.90	1.19	42	42	42	42	42	42	42	42	.37	.34							1120
Mean	1.02	.62	1.64	.61	.50	1.11	1.00	.55	1.55	.69	.53	1.23	1.59	1.17	42			42	41			42									
																					TOTAL		.82	.81						
Dec.																															
7	1.28	.92	2.20	.75	.56	1.31	1.20	1.01	2.21	.90	.58	1.48	2.20	1.40	35	35	36	36	35	35	35	36									1320

[1] a = artificial precipitation

Table 23.--Hydrometeorological factors, Forest site,

October 11, 1954 to December 7, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE COUCH

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Feb.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.67	1.03	1.70	.94	.87	1.81	.80	.90	1.70	.90	.98	1.88	1.70	1.84	32	33	33	34	31	32	34	34			49	23	36			3.1	1300
5	.91	1.08	1.99	.95	.88	1.83	1.05	.95	2.00	.94	.99	1.93	2.00	1.88	32	32	33	34	31	32	34	33			39	21	30			7.6	1130
9	1.03	1.12	2.15	.96	.89	1.85	1.22	.99	2.21	.97	1.00	1.97	2.18	1.91	32	32	33	34	31	32	34	34			48	15	22			2.7	1150
11	.99	1.11	2.10	.97	.90	1.87	1.23	1.00	2.23	.98	1.01	1.99	2.16	1.93	32	33	33	34	31	32	34	34			35	7	21			3.5	1445
15	2/	1.19		.98	.90	1.88	1.31	1.05	2.36	.81	1.01	1.82		1.85	29	30	30	30	30	30	31	31	.74	.74	45	24	34			10.1	1445
17	1.12	1.29	2.41	1.00	.94	1.94	1.47	1.26	2.73	1.25	1.06	2.31	2.57	2.12	32	33	33	34	31	32	34	34			47	32	40			5.9	1145
19	1.02	1.17	2.19	1.01	.95	1.96	1.40	1.19	2.59	1.08	1.04	2.12	2.39	2.04	32	33	33	33	32	32	34	34	.14	.14	49	28	38			2.3	1045
22	1.21	1.27	2.48	1.00	.96	1.96	1.47	1.32	2.79	1.09	1.05	2.14	2.64	2.05	37	35	34	35	36	34	34	35	.45	.45	45	28	36			6.4	1200
23	1.22	1.19	2.41	1.00	.96	1.96	1.38	1.21	2.59	1.09	1.06	2.15	2.50	2.06	36	35	35	35	32	32	33	34									
24	1.18	1.11	2.29	.99	.96	1.95	1.17	1.10	2.27	1.07	1.05	2.12	2.28	2.04	48	45	40	38	48	43	40	38			55	39	47			7.1	1555
26	1.17	1.08	2.25	.96	.92	1.88	1.20	1.08	2.28	1.01	1.02	2.03	2.26	1.96	35	34	35	36	34	34	36	36			48	27	38			11.4	1125
Mean	1.05	1.15	2.20	.98	.92	1.90	1.25	1.10	2.34	1.02	1.02	2.04	2.27	1.97	34			34	33			34			46	25	34			6.0	
																					TOTAL		1.33	1.33							
Mar.																															
1	.97	.92	1.89	.93	.90	1.83	.76	.89	1.65	.93	1.00	1.93	1.77	1.88	33	34	34	35	32	33	36	36			43	23	33			8.8	1200
3	2/	.87		.90	.89	1.79	2/	.84		.89	.98	1.87		1.83	32	33	34	34	31	32	34	35			38	18	28			6.7	1330
5	.93	.92	1.85	.90	.88	1.78	.78	.85	1.63	.88	.96	1.84	1.74	1.81	43	38	35	34	44	38	35	35			52	20	36			5.1	1625
8	.98	.96	1.94	.90	.87	1.77	.84	.87	1.71	.88	.95	1.83	1.82	1.80	37	36	35	35	36	36	36	36	.15	.15	50	26	38			4.5	1000
10	1.16	1.18	2.34	.99	.94	1.93	1.36	1.12	2.48	1.06	1.04	2.10	2.41	2.02	43	41	39	38	43	40	39	38	1.02	1.02	59	28	44			8.2	1455
12	1.19	1.21	2.40	.98	.93	1.91	1.42	1.17	2.59	1.15	1.04	2.19	2.50	2.05	46	40	36	35	46	38	36	36	.05	.05							
15	1.10	1.04	2.14	.97	.93	1.90	1.06	1.00	2.06	1.10	1.02	2.12	2.10	2.01	43	38	36	36	42	37	37	36			47	14	30			4.9	1300
17	1.06	1.00	2.06	.98	.96	1.94	.89	.96	1.85	1.01	1.00	2.01	1.96	1.98	36	37	38	38	36	37	38	38	.02	.02	50	31	40			4.6	0945
18	1.08	1.04	2.12	.97	.92	1.89	.97	.99	1.96	1.02	1.00	2.02	2.04	1.96	50	43	38	36	49	42	38	37			45	26	36			7.4	1535
19	1.07	1.01	2.08	.96	.92	1.88	.95	.96	1.91	.81	1.00	1.81	2.00	1.84	44	39	37	36	43	38	38	37			45	26	36			5.7	1405
22	1.12	1.08	2.20	.99	.94	1.93	1.44	1.02	2.46	.89	1.03	1.92	2.33	1.92	52	47	41	39	51	46	42	39	.35	.35	47	29	38			3.9	1425
24	1.05	1.02	2.07	.97	.93	1.90	1.26	.97	2.23	1.02	1.02	2.04	2.15	1.97	38	37	38	38	39	37	39	39			62	30	46			4.5	0930
26	.89	.90	1.79	.92	.91	1.83	.78	.85	1.63	.94	1.00	1.94	1.71	1.88	43	41	39	38	43	40	39	38			48	26	37			9.6	1425
29	2/	.82		.88	.88	1.76	2/	.77		.87	.96	1.83		1.80	31	34	35	36	31	33	36	36			45	15	30			10.4	0915
Mean	1.05	1.00	2.07	.95	.91	1.86	1.04	.95	2.01	.96	1.00	1.96	2.04	1.91	41			36	40			37			48	24	36			6.5	
																					TOTAL		1.59	1.59							
Apr.																															
1	.71	.80	1.51	.83	.84	1.67	.65	.76	1.41	.83	.92	1.75	1.46	1.71	38	38	36	36	37	37	38	37			45	8	26			9.2	1745
2	.71	.80	1.51	.84	.85	1.69	.65	.76	1.41	.83	.92	1.75	1.46	1.72	41	39	37	36	40	38	38	37			47	33	40			6.8	1315
5	.87	.85	1.72	.84	.84	1.68	.78	.80	1.58	.86	.92	1.78	1.65	1.73	43	40	40	40	41	39	39	40	.36	.36	54	35	44			9.6	0950
7	.90	.87	1.77	.87	.85	1.72	.80	.85	1.65	.74	.93	1.67	1.71	1.70	38	35	37	38	38	36	38	38	.22	.22	52	31	42			11.4	0935
9	.87	.86	1.73	.86	.85	1.71	.77	.81	1.58	.88	.93	1.81	1.66	1.76	41	39	38	38	41	38	38	38	.07	.07	49	28	38			10.0	1250
12	.79	.82	1.61	.85	.84	1.69	.67	.77	1.44	.84	.91	1.75	1.52	1.72	50	46	41	41	48	44	42	41			53	27	40			5.4	1300

[1] a = artificial precipitation

2/ Frozen soil

Table 24.--Hydrometeorological factors, Couse site,

February 2, 1954 to April 12, 1954.

HYDROMETEOROLOGICAL FACTORS

SITE COUSE

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Apr.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
13	.83	.82	1.65	.84	.84	1.68	.72	.78	1.50	.84	.91	1.75	1.58	1.72	51	48	44	43	49	46	44	43	.08	.08	48	45	46			8.5	1310
14	.72	.80	1.52	.83	.83	1.66	.66	.76	1.42	.82	.90	1.72	1.47	1.69	47	44	41	41	46	42	42	41									
16	.64	.76	1.40	.79	.82	1.61	.57	.72	1.29	.78	.89	1.67	1.34	1.64	61	51	44	41	61	49	44	41			68	26	47			8.1	1345
19	.58	.70	1.28	.73	.81	1.54	.55	.67	1.22	.72	.86	1.58	1.25	1.56	44	44	44	44	42	43	44	44			68	34	51			7.8	1335
21	.54	.66	1.20	.70	.80	1.50	.52	.65	1.17	.73	.84	1.57	1.18	1.54	51	44	41	41	49	43	42	42	.03	.03	54	28	41			4.3	1025
23	.54	.60	1.14	.67	.78	1.45	.38	.59	.97	.69	.80	1.49	1.06	1.47	66	57	49	45	63	55	48	45			61	28	44			8.0	1515
26	.46	.56	1.02	.63	.76	1.39	.45	.54	.99	.65	.76	1.41	1.00	1.40	41	41	41	42	40	40	42	42	.09	.09	57	30	44			6.0	1115
27	.70	.59	1.29	.63	.76	1.39	.67	.58	1.25	.66	.75	1.41	1.27	1.40	51	44	41	41	48	41	41	41	.30	.30	54	38	46			8.4	1005
28	.62	.62	1.24	.64	.76	1.40	.58	.60	1.18	.67	.75	1.42	1.21	1.41	48	45	43	41	46	44	42	42			52	32	42			15.4	1005
30	.51	.58	1.09	.63	.75	1.38	.49	.58	1.07	.66	.75	1.41	1.08	1.40	53	49	43	41	51	46	42	40			48	23	36			2.2	1510
Mean	.59	.73	1.42	.76	.81	1.57	.62	.70	1.32	.76	.86	1.62	1.37	1.60	48			41	46			41			54	30	42			8.1	
																					TOTAL		1.15	1.15							
May																															
3	.44	.54	.98	.60	.74	1.34	.44	.52	.96	.63	.72	1.35	.97	1.34	54	48	46	44	46	44	44	44	.03	.03	60	24	42			4.6	1040
5	.42	.51	.93	.58	.72	1.30	.42	.50	.92	.61	.68	1.29	.92	1.30	59	51	46	45	55	48	46	44			70	39	54			5.5	1120
7	.37	.47	.84	.56	.72	1.28	.38	.46	.84	.57	.63	1.20	.84	1.24	72	59	51	49	68	55	51	48			70	36	53			4.1	1245
10	.37	.45	.82	.53	.68	1.21	.38	.42	.80	.54	.58	1.12	.81	1.16	55	52	51	51	54	52	52	50	.03	.03	84	47	66			5.0	1410
12	.48	.47	.95	.52	.68	1.20	.48	.45	.93	.54	.57	1.11	.94	1.16	56	53	50	47	55	51	49	49	.19	.19	63	37	50			9.3	1510
13	.41	.46	.87	.52	.67	1.19	.39	.44	.83	.53	.56	1.09	.85	1.14	73	59	50	47	72	56	50	47			62	32	47			4.1	1320
14	.38	.45	.83	.52	.66	1.18	.37	.43	.80	.53	.54	1.07	.82	1.12	76	61	51	49	72	58	52	49			69	37	53			4.1	1300
17	.32	.40	.72	.48	.60	1.08	.30	.39	.69	.49	.50	.99	.70	1.04	81	68	59	55	80	63	58	56			78	43	60			3.5	1225
19	.31	.39	.70	.47	.55	1.02	.29	.35	.64	.47	.48	.95	.67	.98	70	62	60	59	69	62	61	59			86	50	68			4.6	0945
20	.27	.36	.63	.46	.51	.97	.26	.35	.61	.46	.48	.94	.62	.96	78	69	62	60	75	66	62	59			74	45	60			5.6	1405
21	.29	.37	.66	.46	.51	.97	.26	.34	.60	.44	.48	.92	.63	.94	68	63	60	58	66	62	60	57			69	43	56			10.0	1330
22	.29	.36	.65	.46	.50	.96	.32	.35	.67	.45	.48	.93	.66	.94	48	51	54	56	47	50	54	55	.02	.02	63	39	51			3.8	0650
24	.26	.34	.60	.43	.48	.91	.25	.32	.57	.43	.46	.89	.58	.90	76	64	60	58	75	63	59	57			76	38	57			3.6	1155
25	.78	.35	1.13	.43	.47	.90	.74	.34	1.08	.38	.47	.85	1.11	.88	60	57	56	56	60	56	56	55	.55	.55	77	40	58			8.9	1455
27	.90	.56	1.46	.44	.48	.92	.81	.45	1.26	.42	.47	.89	1.36	.90	44	45	46	49	43	44	46	48	.25	.25	56	33	44			7.6	1055
28	.80	.59	1.39	.45	.48	.93	.72	.54	1.26	.44	.47	.91	1.32	.92	73	62	54	51	69	60	54	50	.05	.05	64	37	50			7.0	1500
30	.66	.56	1.22	.45	.48	.93	.58	.52	1.10	.46	.47	.93	1.16	.93	55	54	52	51	53	53	53	53			72	40	56			5.6	1220
Mean	.48	.46	.94	.49	.58	1.08	.45	.42	.87	.50	.53	1.04	.90	1.05	65			52	62			52			70	39	54			5.7	
																					TOTAL		1.12	1.12							
June																															
1	1.07	.79	1.86	.47	.48	.95	1.00	.82	1.82	.48	.48	.96	1.84	.96	47	44	45	47	45	43	45	47	.72	.72	53	34	44			6.3	1055
2	.84	.80	1.64	.56	.49	1.05	.81	.76	1.57	.58	.48	1.06	1.60	1.06	72	60	51	49	69	56	51	48			64	33	48			5.6	1400
4	1.07	.94	2.01	.60	.48	1.08	.97	.81	1.78	.74	.48	1.22	1.90	1.15	60	55	53	53	58	54	53	53	.49	.49	78	42	60			5.8	1525
7	1.04	.92	1.96	.69	.51	1.20	.98	.82	1.80	.71	.50	1.21	1.88	1.20	49	48	48	49	47	47	48	48	.35	.35	60	33	46			7.5	1030

[1] a = artificial precipitation

Table 25.--Hydrometeorological factors, Ocuse site,

April 13, 1954 to June 7, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE COUSE

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
June 6	.98	.90	1.98	.78	.52	1.30	.90	.81	1.71	.72	.52	1.24	1.60	1.27	52	49	48	49	50	48	48	48	T	T	58	43	50			5.4	0940
9	.84	.84	1.68	.77	.54	1.31	.81	.77	1.58	.71	.52	1.23	1.65	1.27	72	60	54	52	67	57	54	52			71	44	58			2.7	1325
10	.84	.81	1.65	.75	.54	1.29	.81	.76	1.57	.70	.53	1.23	1.61	1.26	57	55	55	54	55	54	54	54	.01	.01	72	48	60			3.7	1140
11	.82	.79	1.61	.74	.55	1.29	.78	.75	1.53	.70	.54	1.24	1.57	1.26	65	56	53	52	62	54	52	52			61	42	52				1130
12	.76	.77	1.53	.72	.56	1.28	.74	.72	1.46	.68	.54	1.22	1.50	1.25	61	60	58	56	58	59	59	55			68	46	57				
14	.73	.74	1.47	.70	.56	1.26	.68	.70	1.38	.66	.54	1.20	1.42	1.23	58	54	53	53	56	53	53	54			63	43	53				0910
16	.72	.72	1.44	.66	.56	1.22	.67	.68	1.35	.65	.53	1.18	1.40	1.20	60	57	52	51	57	55	52	52	.15	.15	66	38	52			7.7	1030
18	.62	.68	1.30	.65	.55	1.20	.67	.65	1.32	.63	.53	1.16	1.26	1.18	64	54	51	51	60	57	50	50			60	32	46			8.8	1110
20	.55	.55	1.30	.61	.54	1.15	.51	.60	1.11	.61	.52	1.13	1.16	1.14	53	53	53	53	51	52	53	53			66	44	55			2.6	0900
22	.46	.57	1.03	.55	.51	1.06	.40	.57	.97	.56	.50	1.06	1.00	1.06	81	69	60	58	78	64	60	56			78	43	60			5.0	1310
23	.42	.52	.94	.55	.50	1.05	.40	.53	.93	.56	.49	1.05	.94	1.05	78	68	61	59	74	64	61	58			80	43	62			4.7	1335
25	.37	.49	.86	.52	.48	1.00	.36	.46	.82	.51	.48	.99	.84	1.00	80	68	61	60	75	65	61	59			77	43	60			3.1	1220
27	.39	.47	.86	.49	.48	.97	.37	.42	.79	.49	.48	.97	.82	.97	67	62	60	59	64	60	60	58	.08	.08	81	49	65			4.3	1225
28	.39	.47	.86	.49	.48	.97	.38	.41	.79	.48	.48	.96	.82	.96	60	58	57	57	56	56	57	56	.01	.01	67	42	54			7.1	1305
30	.36	.45	.81	.48	.47	.95	.34	.39	.73	.46	.47	.93	.77	.94	69	63	60	59	65	61	60	58			77	44	61			3.3	1050
Mean	.70	.70	1.40	.62	.52	1.14	.66	.65	1.31	.61	.51	1.12	1.35	1.13	63			54	60			53			68	41	55			5.2	
																					TOTAL		1.81	1.81							
July																															
2	.54	.47	1.01	.48	.44	.92	.49	.40	.89	.46	.47	.93	.95	.92	59	56	56	57	56	55	56	56	.35	.35	78	46	62			9.4	0915
3	.47	.46	.93	.47	.46	.93	.41	.40	.81	.45	.47	.92	.87	.92	82	72	62	59	80	69	62	58			81	45	63			2.7	1450
6	.34	.43	.77	.45	.44	.89	.32	.38	.70	.44	.46	.90	.74	.90	79	68	64	63	74	65	63	63			89	48	68			2.5	1045
7	.32	.40	.72	.45	.44	.89	.30	.38	.68	.41	.45	.86	.70	.88	81	75	67	65	77	69	67	64			94	56	75			2.7	1035
9	.33	.39	.72	.45	.44	.89	.31	.36	.67	.40	.45	.85	.70	.87	64	63	63	63	62	63	63	64	.10	.10	84	51	67			3.0	0945
11	.85	.64	1.49	.46	.44	.90	.81	.48	1.29	.42	.46	.88	1.39	.89	60	59	59	60	57	57	59	60	.69	.69	73	50	62			3.3	0805
12	.71	.63	1.34	.46	.44	.90	.65	.52	1.17	.45	.45	.90	1.26	.90	76	68	63	63	72	65	63	62			77	52	64			3.0	1150
14	.54	.56	1.10	.46	.44	.90	.50	.49	.99	.46	.46	.92	1.04	.91	69	65	64	62	66	64	63	60			85	51	68			2.4	1030
16	.45	.49	.94	.46	.43	.89	.40	.44	.84	.45	.45	.90	.89	.90	80	72	67	65	78	68	67	65			88	53	70			2.6	1120
19	.35	.42	.77	.45	.43	.88	.32	.36	.68	.44	.45	.89	.72	.88	85	75	69	67	79	73	68	66			92	50	71			3.1	1210
21	.37	.41	.78	.44	.43	.87	.33	.36	.69	.44	.45	.89	.74	.88	62	63	64	65	60	62	63	64			83	44	64			6.9	1140
23	.34	.39	.73	.43	.42	.85	.30	.34	.64	.40	.45	.85	.68	.85	74	66	63	63	69	64	63	63	.02	.02	75	38	56			3.0	1030
26	.32	.38	.70	.42	.42	.84	.28	.33	.61	.40	.45	.85	.66	.84	70	67	66	66	68	65	66	66			89	48	68			2.9	0920
28	.28	.37	.65	.42	.39	.81	.27	.32	.59	.39	.45	.84	.62	.82	74	67	65	65	68	64	64	65			83	42	62			4.4	1015
30	.25	.36	.61	.41	.41	.82	.24	.31	.55	.38	.45	.83	.58	.82	80	70	66	66	75	67	66	65			84	43	64			2.1	1105
Mean	.43	.45	.88	.45	.43	.88	.40	.39	.79	.43	.45	.89	.84	.88	73			63	69			63			84	48	66			3.6	
																					TOTAL		1.16	1.16							

[1] a = artificial precipitation

Table 26.--Hydrometeorological factors, Couse site,

June 8, 1954 to July 30, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE COUSE

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Aug.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.21	.35	.56	.40	.41	.81	.21	.30	.51	.38	.45	.83	.54	.82	75	69	68	68	69	68	66	68			93	48	70			2.2	0950
4	.21	.34	.55	.40	.41	.81	.20	.30	.50	.38	.45	.83	.52	.82	66	63	64	65	64	62	63	64			85	40	62			5.0	0925
6	.16	.33	.49	.40	.41	.81	.17	.30	.47	.37	.45	.82	.48	.82	78	70	68	67	72	67	67	66			81	45	63			2.5	1150
9	.15	.32	.47	.39	.40	.79	.15	.29	.44	.37	.45	.82	.46	.80	75	69	67	67	71	66	67	67			88	49	68			5.1	1015
11	.13	.31	.44	.37	.40	.77	.14	.28	.42	.36	.45	.81	.43	.79	80	70	67	67	75	67	66	65			84	40	62			2.9	1130
13	.12	.31	.43	.38	.40	.78	.14	.28	.42	.35	.45	.80	.42	.79	68	65	66	67	66	65	67	66			87	47	64			2.5	0900
16	.37	.32	.69	.38	.41	.79	.28	.28	.56	.37	.45	.82	.62	.80	64	60	60	62	62	59	61	61	.35	.35	89	48	68			3.2	1035
17	.44	.32	.76	.39	.41	.80	.31	.28	.59	.36	.45	.81	.68	.80	74	69	64	63	71	66	65	63	.07	.07	73	51	62			3.3	1430
19	.43	.35	.78	.38	.40	.78	.36	.29	.65	.37	.45	.82	.72	.80	64	64	63	63	62	63	63	64			82	49	66			2.6	1100
20	.56	.36	.92	.39	.41	.80	.46	.30	.76	.38	.45	.83	.84	.82	66	63	61	61	63	62	61	62	.27	.27	69	52	60			5.0	1440
21	.61	.37	.98	.40	.41	.81	.52	.31	.83	.37	.45	.82	.90	.82	65	61	60	60	63	60	60	60	.02	.02	69	49	59			2.9	1500
23	.57	.42	.99	.40	.41	.81	.49	.33	.82	.38	.45	.83	.90	.82	60	59	59	60	57	57	59	59	.06	.06	70	52	61			4.7	0925
24	1.07	.49	1.56	.41	.41	.82	.91	.35	1.26	.38	.45	.83	1.41	.82	62	60	59	59	59	58	56	57	.52	.52	68	47	58			3.2	1525
26	.88	.67	1.55	.42	.42	.84	.80	.54	1.34	.42	.46	.83	1.44	.86	63	60	58	57	60	57	57	56	.12	.12	66	42	54			3.7	1525
30	.66	.66	1.32	.45	.42	.87	.56	.58	1.14	.49	.46	.95	1.23	.91	65	60	60	60	62	59	60	60			89	45	67			3.8	1015
31	.88	.62	1.50	.46	.42	.88	.78	.59	1.37	.49	.46	.95	1.44	.92	64	61	60	60	61	60	61	61	.36	.36	90					5.6	1125
Mean	.47	.41	.87	.40	.41	.81	.41	.35	.76	.39	.45	.84	.81	.83	68			63	65			62			80	47	63			3.5	
																					TOTAL		1.77	1.77							
Sept.																															
2	.76	.69	1.45	.46	.43	.89	.68	.60	1.28	.52	.47	.99	1.36	.94	60	59	59	60	58	56	58	58			85	46	64			3.3	0930
3	.76	.68	1.44	.46	.44	.90	.68	.60	1.28	.53	.47	1.00	1.36	.95	60	60	60	59	57	58	60	61	.10	.10	83	50	66			5.1	0950
6	.66	.67	1.33	.48	.44	.92	.53	.59	1.12	.50	.48	.98	1.32	.95	68	60	57	56	65	58	56	55			75	38	56			3.8	1535
8	.60	.66	1.26	.48	.45	.93	.49	.59	1.08	.54	.48	1.02	1.17	.98	55	54	54	55	53	52	53	55			78	42	60			5.9	0925
10	.57	.61	1.18	.48	.44	.92	.42	.58	1.00	.53	.48	1.01	1.09	.96	80	73	64	60	77	69	64	61			89	46	68			3.9	1555
13	.52	.58	1.10	.48	.45	.93	.44	.54	.98	.52	.48	1.00	1.04	.96	58	55	55	57	55	54	55	56	.02	.02	86	43	64			3.9	0930
16	.97	.68	1.65	.48	.46	.94	.82	.59	1.41	.52	.49	1.01	1.53	.98	55	54	55	55	53	52	54	55	.48	.48	79	47	63			3.6	0950
17	1.07	.80	1.87	.48	.46	.94	.89	.68	1.57	.54	.48	1.02	1.72	.98	51	52	53	54	50	51	53	55	.23	.23	62	45	54			4.0	1040
18	1.17	1.06	2.23	.69	.46	1.15	.96	.94	1.90	.72	.49	1.21	2.06	1.18	60	56	53	53	57	54	53	54	1.29	1.29	59	46	52			8.0	1310
20	1.01	.96	1.97	.77	.47	1.24	.83	.86	1.69	.75	.50	1.25	1.83	1.24	60	54	51	51	60	54	51	51			66	41	54			3.8	1120
22	.91	.91	1.82	.76	.48	1.24	.80	.82	1.62	.73	.51	1.24	1.72	1.24	55	53	53	54	52	52	55	54			77	43	60			3.3	1000
24	.84	.87	1.71	.74	.49	1.23	.75	.82	1.57	.72	.52	1.24	1.64	1.24	60	55	53	54	58	55	52	53			70	40	55			3.6	1045
27	.75	.81	1.56	.69	.51	1.20	.67	.76	1.43	.71	.54	1.25	1.50	1.22	60	57	57	55	59	55	54	55			84	44	64			2.9	1235
29	.76	.80	1.56	.68	.54	1.22	.67	.75	1.42	.69	.55	1.24	1.49	1.23	52	46	46	48	49	44	46	48	.09	.09	69	32	50			3.8	1115
Mean	.81	.77	1.58	.58	.47	1.05	.69	.69	1.38	.61	.50	1.10	1.48	1.08	60			55	57			55			76	43	59			4.2	
																					TOTAL		2.21	2.21							

[1] a = artificial precipitation

Table 27.--Hydrometeorological factors, Gouse site,

August 2, 1954 to September 29, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE COUSE

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Oct.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.69	.76	1.45	.68	.55	1.23	.60	.73	1.33	.68	.56	1.24	1.39	1.24	46	43	44	46	42	41	44	45			61	29	45			3.0	0955
4	.67	.73	1.40	.67	.55	1.22	.55	.70	1.25	.66	.55	1.21	1.32	1.22	57	53	50	47	55	52	49	48			60	33	46			3.4	1520
8	.62	.68	1.30	.64	.55	1.19	.52	.67	1.19	.65	.56	1.21	1.24	1.20	59	54	51	50	55	51	50	49			71	40	56			4.1	1305
11	.62	.66	1.28	.62	.55	1.17	.52	.65	1.17	.63	.55	1.18	1.22	1.18	46	46	46	48	44	44	46	48	.06	.06	64	36	50			5.9	1015
15	.58	.65	1.23	.60	.56	1.16	.49	.64	1.13	.62	.54	1.16	1.18	1.16	49	44	43	44	46	42	43	44			64	22	43			7.3	1045
18	.62	.64	1.26	.59	.56	1.15	.51	.63	1.14	.62	.54	1.16	1.20	1.16	46	45	46	47	44	43	45	47	.09	.09	73	39	56			6.0	1000
20	.64	.64	1.28	.58	.58	1.13	.53	.63	1.16	.61	.55	1.16	1.22	1.14	36	38	42	45	35	38	42	44	.05	.05	65	32	49			6.4	0835
25	.99	.96	1.95	.76	.57	1.33	.87	.92	1.79	.78	.58	1.36	1.87	1.34	45	40	39	41	42	38	39	40	1.23	1.23	57	27	42			3.1	1200
Mean	.68	.72	1.39	.64	.56	1.20	.57	.70	1.27	.66	.55	1.21	1.33	1.20	48			46	45			46			64	32	48			4.9	
																					TOTAL		1.43	1.43							
Nov.																															
1	.91	.89	1.80	.76	.63	1.39	.82	.84	1.66	.77	.66	1.43	1.73	1.41	47	42	40	40	45	40	40	40	.05	.05	58	27	42				
9	1.06	1.02	2.08	.88	.67	1.55	.96	.93	1.89	.87	.72	1.59	1.98	1.57	44	43	44	44	41	41	42	43	.63	.63	77	28	52				
15	1.06	1.08	2.14	1.00	.92	1.92	1.01	.99	2.00	1.00	.94	1.94	2.07	1.93	41	41	41	42	39	40	42	42	.55	.56	55	32	44				
Mean	1.01	1.00	2.01	.88	.74	1.62	.93	.92	1.85	.88	.77	1.65	1.93	1.64	44			42	42			42			63	29	46				
																					TOTAL		1.23	1.23							
Dec.																															
7	1.19	1.02	2.21	1.01	1.03	2.04	.98	.99	1.97	.99	1.04	2.03	2.09	2.04	38	32	33	34	30	30	33	34	1.14	1.14							

[1] a = artifficial precipitation

Table 28.--Hydrometeorological factors, Couse site,

October 2, 1954 to December 7, 1954.

RI- INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FALLOW

DATE 1954	SOIL MOISTURE TIER 1 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	TIER 2 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SITE MEANS 0-6	6-12	SOIL TEMPERATURE TIER 1 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	TIER 2 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	PRECIPITATION[1] TIER 1	TIER 2	AIR TEMPERATURE MAXIMUM	MINIMUM	MEAN	DEG. DAYS	RELATIVE HUMIDITY	WIND VELOCITY	TIME
Feb.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	1.35	1.17	2.52	1.34	1.56	2.90	2/	1.41	2/	1.37	1.51	2.88	2/	2.89	32	32	33	33	32	32	33	33									1445
5	1.38	1.18	2.56	1.35	1.57	2.92	2/	1.15	2/	1.38	1.51	2.89	2/	2.90	32	32	32	34	32	32	33	33									1000
9	1.38	1.17	2.55	1.35	1.55	2.90	1.56	1.22	2.78	1.38	1.51	2.89	2.66	2.90	32	33	33	34	32	32	33	33									1500
11	1.40	1.18	2.58	1.35	1.55	2.90	1.61	1.22	2.83	1.38	1.51	2.89	2.70	2.90	32	33	33	34	32	32	33	33									0900
15	1.48	1.12	2.60	1.28	1.42	2.70	1.73	1.37	3.10	1.44	1.52	2.96	2.85	2.83	30	30	30	32	30	30	32	32	.62	.62							1305
17	1.44	.80	2.24	1.31	1.36	2.67	1.73	1.41	3.14	1.46	1.54	3.00	2.69	2.84	32	32	32	32	32	32	33	33	.03	.03							0910
19	1.48	1.10	2.58	1.28	1.21	2.49	1.64	1.56	3.20	1.50	1.54	3.04	2.89	2.76	32	32	32	33	32	33	33	33	.36	.36							
22	1.48	1.08	2.56	1.25	1.30	2.55	1.55	1.47	3.02	1.44	1.54	2.98	2.46	2.76	32	32	32	33	30	32	32	33	.53	.53							1210
25	1.40	1.06	2.46	1.25	1.18	2.43	1.68	1.26	2.94	1.42	1.54	2.96	2.70	2.70	32	32	32	33	32	32	33	33									
26	1.42	1.16	2.58	1.23	1.33	2.56	1.51	1.63	3.14	1.38	1.52	2.90	2.86	2.73	32	32	33	33	32	33	33	33									1340
Mean	1.42	1.10	2.52	1.30	1.40	2.70	1.63	1.37	3.02	1.42	1.52	2.94	2.73	2.82	32			33	31			33									
																					TOTAL		1.54	1.54							
Mar.																															
1	1.16	1.11	2.27	1.26	1.46	2.72	.92	1.39	2.31	1.36	1.52	2.88	2.29	2.80	32	33	33	33	32	32	33	33									0930
3	.98	1.03	2.01	1.18	1.45	2.63	.83	1.08	1.91	1.23	1.50	2.73	1.96	2.68	32	33	33	33	32	32	33	33									1130
5	1.35	1.11	2.46	1.18	1.44	2.62	.89	1.08	1.97	1.19	1.50	2.69	2.22	2.66	32	32	32	33	32	33	33	33									1345
8	1.38	1.15	2.53	1.23	1.40	2.63	.90	1.50	2.40	1.36	1.49	2.85	2.46	2.74	33	33	33	33	32	32	32	33	.28	.28							1040
10	1.25	1.06	2.31	1.25	1.39	2.64	1.23	1.30	2.53	1.28	1.48	2.76	2.42	2.70	33	34	35	36	33	34	35	35	.84	.84							1050
12	1.35	1.10	2.45	1.17	1.44	2.61	1.19	1.06	2.25	1.18	1.48	2.66	2.35	2.64	33	33	34	35	32	33	34	34	.06	.06							1300
15	1.29	1.08	2.37	1.13	1.37	2.50	1.01	1.10	2.11	1.17	1.41	2.58	2.24	2.54	39	36	35	35	41	38	35	35									1455
17	1.12	1.06	2.18	1.15	1.37	2.52	.89	1.05	1.94	1.19	1.41	2.60	2.06	2.56	36	36	37	38	36	36	37	38	.03	.03							1055
19	1.26	1.07	2.33	1.06	1.30	2.36	1.14	.97	2.11	1.14	1.39	2.53	2.22	2.44	38	36	35	36	33	34	35	36									1400
22	1.29	1.14	2.43	1.22	1.34	2.56	1.04	1.21	2.25	1.26	1.42	2.68	2.34	2.62	41	37	36	38	45	38	37	37	.35	.35							1030
24	1.15	1.10	2.25	1.18	1.34	2.52	.90	1.05	1.95	1.19	1.41	2.60	2.10	2.56	38	37	37	38	39	36	36	37									1020
26	.99	1.02	2.01	1.11	1.33	2.44	.85	.95	1.80	1.14	1.38	2.52	1.90	2.48	42	40	38	38	42	40	38	38									1515
29	.72	.92	1.64	1.00	1.26	2.26	2/	.82	2/	1.06	1.33	2.39	2/	2.32	32	33	33	35	30	32	33	35									1030
Mean	1.18	1.07	2.25	1.16	1.38	2.54	.91	1.12	2.13	1.21	1.44	2.65	2.21	2.60	35			35	35			35									
																					TOTAL		1.56	1.56							
Apr.																															
1	1.02	1.00	2.02	1.01	1.26	2.27	.97	.91	1.88	1.08	1.30	2.38	1.95	2.32	35	34	33	35	37	35	34	34									1215
2	1.02	1.02	2.04	1.04	1.26	2.30	.94	.92	1.86	1.10	1.31	2.41	1.95	2.36	38	37	35	35	40	38	35	35									1420
5	1.38	1.14	2.52	1.18	1.28	2.46	1.74	1.15	2.89	1.18	1.33	2.51	2.70	2.48	42	40	38	39	44	41	38	39	.38	.38							1030
7	1.35	1.10	2.45	1.16	1.28	2.44	1.68	1.10	2.75	1.20	1.34	2.54	2.60	2.49	35	35	35	37	38	35	36	37	.24	.24							1000
9	1.22	1.12	2.34	1.15	1.25	2.40	1.19	1.10	2.29	1.20	1.34	2.54	2.32	2.47	41	38	37	38	42	40	37	38	.09	.09							1435
12	1.05	1.05	2.10	1.11	1.24	2.35	.89	.98	1.87	1.16	1.34	2.50	1.98	2.42	47	45	42	41	49	47	42	41									1355
13	1.16	1.09	2.25	1.15	1.25	2.40	.96	1.02	1.98	1.17	1.35	2.52	2.12	2.46	51	47	44	42	54	50	45	43	.08	.08							1330
14	1.06	1.05	2.11	1.09	1.23	2.32	.91	.97	1.88	1.14	1.34	2.48	2.00	2.40	40	39	39	40	42	40	40	41									1110
16	.90	.93	1.83	1.06	1.18	2.24	.74	.92	1.66	1.11	1.32	2.43	1.74	2.34	52	47	43	41	55	50	43	41									1540

[1]a=artificial precipitation

2/frozen soil

Table 29.--Hydrometeorological factors, Fallow site,

February 2, 1954 to April 16, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FALLOW

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Apr.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
19	.87	.97	1.84	1.02	1.15	2.17	.76	.88	1.64	1.07	1.28	2.35	1.74	2.26	42	41	41	41	44	42	42	42									1215
21	.86	.98	1.84	1.00	1.11	2.11	.78	.88	1.66	1.08	1.27	2.35	1.78	2.23	44	41	39	40	50	43	40	41	.03	.03							1120
24	.78	.91	1.69	.97	1.06	2.03	.74	.87	1.61	1.05	1.23	2.28	1.68	2.16	44	41	39	40	50	43	40	41									1145
26	.79	.88	1.67	.96	1.04	2.00	.86	.87	1.73	1.05	1.20	2.25	1.70	2.18	39	39	39	40	45	40	40	41	.11	.11							1140
27	.97	.98	1.95	.98	1.04	2.02	.71	.96	1.67	1.07	1.23	2.30	1.81	2.16	49	44	42	41	54	46	42	41	.34	.34							1230
28	.88	.95	1.83	1.00	1.05	2.05	1.15	.96	2.11	1.07	1.22	2.29	1.97	2.17	43	42	41	41	45	42	42	42									1300
30	.74	.89	1.63	.96	1.03	1.99	.73	.87	1.60	1.05	1.20	2.25	1.62	2.12	45	42	39	38	45	42	39	38									1545
Mean	1.00	1.00	2.01	1.05	1.17	2.22	.98	.96	1.94	1.11	1.29	2.40	1.98	2.31	43			39	46			40									
																					TOTAL		1.27	1.27						
May																															
3	.69	.85	1.54	.92	1.00	1.92	.75	.86	1.61	1.04	1.16	2.20	1.68	2.06	46	44	42	42	49	46	43	42	.02	.02							1315
5	.70	.87	1.57	.93	.99	1.92	.73	.86	1.59	1.04	1.16	2.20	1.68	2.06	60	53	47	45	66	56	48	46	.03	.03							1505
7	.68	.80	1.48	.88	.98	1.86	.70	.85	1.55	1.03	1.12	2.14	1.62	2.00	60	54	50	47	68	58	50	48									1300
10	.66	.77	1.43	.79	.95	1.74	.72	.85	1.57	1.00	1.08	2.08	1.60	1.91	56	52	51	51	58	54	52	51									1440
12	.75	.81	1.56	.84	.96	1.80	.98	.87	1.85	1.02	1.10	2.12	1.70	1.96	52	49	46	46	54	50	47	46	.23	.23							1500
13	.70	.80	1.50	.82	.96	1.78	.78	.87	1.65	1.01	1.09	2.10	1.68	1.94	62	56	50	46	66	59	50	47									1505
14	.66	.78	1.44	.79	.95	1.74	.69	.85	1.54	1.00	1.06	2.06	1.49	1.90	65	58	52	48	72	61	52	49									1430
17	.62	.71	1.33	.83	.93	1.76	.68	.78	1.46	.95	1.02	1.97	1.40	1.86	71	64	58	54	80	69	59	56									1515
19	.62	.69	1.31	.79	.92	1.71	.67	.75	1.42	.90	1.00	1.90	1.36	1.80	65	61	59	58	72	63	60	60									1035
20	.62	.68	1.30	.78	.91	1.69	.68	.76	1.44	.90	1.00	1.90	1.37	1.80	67	63	60	58	71	68	61	60									1430
21	.62	.68	1.30	.77	.90	1.67	.68	.77	1.45	.90	1.00	1.90	1.38	1.78	60	57	56	55	63	60	58	58									1400
22	.62	.68	1.30	.78	.90	1.68	.69	.76	1.45	.91	1.00	1.91	1.38	1.80	48	50	51	53	48	49	52	54	.10	.10							0705
24	.62	.68	1.30	.78	.89	1.67	.70	.78	1.48	.92	1.00	1.92	1.39	1.80	68	61	57	56	75	66	59	57									1325
25	.74	.79	1.53	.84	.89	1.73	1.03	.84	1.87	.88	.93	1.81	1.70	1.77	56	55	54	54	59	57	55	55	.61	.61							1520
27	.76	.88	1.64	.92	.90	1.82	1.06	.90	1.96	.94	.97	1.91	1.80	1.86	43	43	44	47	46	43	45	47	.27	.27							1020
28	.74	.88	1.62	.92	.90	1.82	.89	.87	1.76	.94	.98	1.92	1.69	1.87	60	55	51	49	65	59	51	49	.03	.03							1550
30	.70	.87	1.57	.90	.90	1.80	.76	.81	1.57	.90	.97	1.87	1.67	1.84	52	51	51	51	55	52	51	51									1100
31	.69	.86	1.55	.88	.90	1.78	.78	.80	1.58	.90	.96	1.86	1.56	1.82	47	48	49	50	46	47	49	50									0605
Mean	.68	.78	1.46	.84	.93	1.77	.78	.82	1.60	.95	1.03	1.99	1.53	1.89	58			50	62			51									
																					TOTAL		1.29	1.29						
June																															
1	.91	.89	1.80	.93	.90	1.83	1.12	1.12	2.24	.97	.98	1.95	2.02	1.89	46	44	44	46	50	46	45	46	.71	.71							1110
2	.78	.89	1.67	.93	.90	1.83	.86	.93	1.79	1.02	1.00	2.02	1.73	1.92	61	56	51	48	69	60	51	49									1430
4	.90	.90	1.80	.94	.91	1.85	1.11	1.15	2.26	1.04	1.01	2.05	2.03	1.95	52	51	51	51	57	52	52	52	.59	.59							1405
7	.90	.92	1.82	.95	.92	1.87	1.08	1.15	2.17	1.13	1.05	2.18	2.00	2.02	46	46	46	46	51	47	46	47	.43	.43							1055
8	.84	.91	1.75	.96	.93	1.89	.90	1.07	1.97	1.13	1.07	2.20	1.86	2.04	49	48	47	48	52	49	48	48	T	T							1005
9	.77	.89	1.66	.95	.94	1.89	.78	.91	1.69	1.04	1.06	2.10	1.68	2.00	63	59	54	51	69	60	54	52									1400

[1] a = artificial precipitation

Table 30.--Hydrometeorological factors, Fallow site,

April 19, 1954 to June 9, 1954.

Ri – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FALLOW

DATE 1954	SOIL MOISTURE TIER 1 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	TIER 2 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SITE MEANS 0-6	6-12	SOIL TEMPERATURE TIER 1 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	TIER 2 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	PRECIPITATION[1] TIER 1	TIER 2	AIR TEMPERATURE MAXIMUM	MINIMUM	MEAN	DEG. DAYS	RELATIVE HUMIDITY	WIND VELOCITY	TIME
June	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
10	.77	.89	1.66	.95	.94	1.89	.82	.90	1.72	1.02	1.06	2.08	1.69	1.98	53	52	52	52	55	54	53	52	.07	.07							1155
11	.76	.89	1.65	.94	.94	1.88	.82	1.91	1.73	1.02	1.05	2.07	1.69	1.98	51	49	50	50	54	50	50	50									0835
12	.71	.89	1.60	.93	.93	1.86	.71	.83	1.54	.96	1.04	2.00	1.57	1.93	60	60	57	53	60	60	57	55									1815
14	.67	.88	1.55	.92	.92	1.84	.70	.81	1.51	.92	.98	1.90	1.53	1.87	56	52	52	52	60	54	52	52	T	T							0935
16	.68	.88	1.56	.92	.92	1.84	.74	.81	1.55	.92	.98	1.90	1.56	1.87	54	57	52	51	60	55	52	52	.17	.17							1605
18	.68	.88	1.56	.90	.91	1.81	.72	.81	1.53	.91	.97	1.88	1.54	1.84	60	54	51	50	66	56	51	51									1145
20	.68	.88	1.56	.89	.91	1.80	.71	.81	1.52	.90	.96	1.86	1.54	1.83	56	54	53	52	59	55	54	54									1110
22	.67	.87	1.54	.88	.90	1.78	.68	.80	1.48	.89	.95	1.84	1.51	1.81	72	65	60	57	79	69	60	59									1340
23	.66	.86	1.52	.86	.90	1.76	.68	.80	1.48	.88	.94	1.82	1.50	1.79	69	65	60	58	73	68	61	60									1500
25	.65	.84	1.49	.83	.89	1.72	.68	.80	1.48	.87	.92	1.79	1.48	1.76	70	64	60	58	75	68	61	60									1255
27	.66	.84	1.50	.83	.88	1.71	.69	.80	1.49	.87	.92	1.79	1.50	1.75	60	59	58	58	63	60	59	59	.11	.11							1115
28	.66	.84	1.50	.83	.88	1.71	.69	.80	1.49	.88	.92	1.80	1.50	1.76	59	58	56	55	62	59	56	57	T	T							1445
30	.66	.83	1.49	.81	.88	1.69	.68	.80	1.48	.87	.93	1.79	1.48	1.74	64	61	59	58	69	62	60	59									1105
Mean	.74	.88	1.61	.90	.91	1.81	.79	.89	1.69	.96	.99	1.95	1.65	1.88	58			52	62			53									
																					TOTAL		2.08	2.08						
July																															
2	.70	.87	1.57	.87	.88	1.75	.74	.81	1.55	.88	.93	1.81	1.56	1.78	58	55	54	55	62	57	55	55	.34	.34							1015
3	.69	.87	1.56	.84	.88	1.72	.70	.80	1.50	.88	.93	1.81	1.53	1.76	79	73	65	59	81	74	64	60									1630
6	.65	.78	1.43	.80	.88	1.68	.68	.79	1.47	.86	.90	1.76	1.45	1.72	71	68	64	62	79	71	66	65									1110
7	.64	.75	1.39	.78	.87	1.65	.68	.78	1.46	.86	.90	1.76	1.42	1.70	74	70	68	64	80	72	68	66									1215
9	.64	.74	1.38	.77	.87	1.64	.68	.78	1.46	.85	.89	1.74	1.42	1.69	62	62	62	62	65	62	63	63	.10	.10							1000
11	.82	.89	1.71	.93	.88	1.81	.89	1.02	1.91	.96	.96	1.92	1.81	1.86	58	58	58	59	60	58	59	60	.70	.70							0825
12	.77	.89	1.66	.92	.88	1.80	.80	.87	1.67	.94	.96	1.90	1.66	1.85	63	61	60	60	68	62	61	61									0930
14	.71	.85	1.59	.91	.88	1.79	.70	.81	1.51	.90	.94	1.84	1.55	1.82	68	64	62	63	70	68	64	63									1045
16	.66	.86	1.52	.86	.88	1.74	.68	.80	1.48	.86	.91	1.77	1.50	1.76	80	73	69	65	84	75	68	66									1250
19	.64	.79	1.43	.79	.87	1.66	.68	.78	1.46	.85	.89	1.74	1.44	1.70	68	66	68	68	69	66	66	66									0930
21	.63	.74	1.37	.78	.86	1.64	.67	.75	1.42	.85	.87	1.72	1.40	1.68	60	60	60	61	60	60	62	63									1200
23	.63	.73	1.36	.76	.86	1.62	.67	.75	1.42	.85	.86	1.71	1.39	1.66	58	59	59	60	59	59	60	61	T	T							0745
26	.62	.70	1.32	.75	.85	1.60	.66	.73	1.39	.84	.86	1.70	1.36	1.65	63	63	62	63	65	62	63	63									0940
28	.62	.70	1.32	.74	.84	1.58	.65	.72	1.37	.84	.85	1.69	1.34	1.64	64	61	60	60	69	62	61	62									1055
30	.62	.68	1.30	.74	.84	1.58	.63	.71	1.34	.82	.85	1.67	1.32	1.62	77	70	65	62	81	72	66	65									1330
Mean	.67	.79	1.46	.82	.87	1.68	.70	.79	1.49	.87	.90	1.77	1.48	1.73	67			62	70			63									
																					TOTAL		1.14	1.14						
Aug.																															
2	.62	.67	1.29	.73	.84	1.57	.62	.69	1.31	.80	.85	1.65	1.30	1.61	70	68	65	64	74	69	66	66									1050
4	.62	.67	1.29	.73	.84	1.57	.62	.69	1.31	.79	.85	1.64	1.30	1.60	62	60	60	60	66	60	60	61									1020
6	.62	.66	1.28	.73	.84	1.57	.61	.68	1.29	.78	.84	1.62	1.28	1.60	71	68	64	63	75	69	64	63									1230

[1]a = artificial precipitation

Table 31.--Hydrometeorological factors, Fallow site,

June 10, 1954 to August 6, 1954.

HYDROMETEOROLOGICAL FACTORS

SITE FALLOW

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Aug.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
9	.62	.66	1.28	.73	.83	1.56	.60	.68	1.28	.76	.84	1.60	1.28	1.58	66	64	62	62	69	64	63	63									1040
11	.62	.65	1.27	.73	.83	1.56	.62	.67	1.29	.75	.84	1.59	1.28	1.58	61	61	62	63	62	60	61	63									0915
13	.62	.65	1.27	.73	.83	1.56	.63	.67	1.30	.74	.84	1.58	1.28	1.57	60	62	63	63	59	60	63	63									0710
16	.62	.65	1.27	.73	.82	1.55	.65	.67	1.32	.74	.84	1.58	1.30	1.56	59	59	59	60	59	59	59	60	.19	.19							0925
17	.62	.66	1.28	.73	.82	1.55	.67	.68	1.35	.75	.84	1.59	1.32	1.57	69	68	63	60	73	69	63	61	.08	.08							1510
19	.62	.66	1.28	.73	.83	1.56	.66	.68	1.34	.76	.84	1.60	1.31	1.58	62	62	61	61	62	62	63	63									1120
20	.70	.68	1.38	.74	.83	1.57	.82	.76	1.58	.79	.84	1.63	1.48	1.60	62	61	60	60	63	62	60	60	.45	.45							1500
21	.70	.71	1.41	.75	.83	1.58	.77	.77	1.54	.82	.85	1.67	1.48	1.62	59	58	57	58	62	58	58	59	.05	.05							1145
23	.68	.72	1.40	.76	.83	1.59	.70	.75	1.45	.82	.85	1.67	1.42	1.63	59	58	58	59	59	58	58	58	.07	.07							1000
24	.90	.84	1.74	.77	.83	1.60	1.07	.88	1.95	.84	.85	1.69	1.84	1.64	60	59	57	58	63	58	57	57	.56	.56							1415
26	.81	.89	1.70	.91	.84	1.75	.82	.96	1.78	.88	.86	1.74	1.74	1.74	59	58	55	55	60	59	55	55	.19	.19							1555
30	.72	.87	1.59	.87	.84	1.71	.69	.90	1.59	.86	.86	1.72	1.59	1.72	59	60	59	59	60	60	60	60									0835
31	.89	.89	1.78	.92	.84	1.76	.94	1.03	1.97	.88	.86	1.74	1.88	1.75	60	60	60	60	62	60	60	60	.51	.51							1145
Mean	.68	.72	1.40	.77	.83	1.60	.72	.76	1.48	.80	.85	1.64	1.44	1.62	62			60	64			61									
																					TOTAL		2.10	2.10							
Sept.																															
2	.77	.88	1.65	.91	.84	1.75	.72	.85	1.57	.87	.86	1.73	1.61	1.74	59	58	57	57	63	59	58	58									1005
3	.75	.88	1.63	.90	.84	1.74	.74	.82	1.56	.87	.88	1.75	1.60	1.74	57	58	59	59	57	58	59	60	.12	.12							0910
6	.68	.86	1.54	.83	.84	1.67	.68	.79	1.47	.85	.86	1.71	1.50	1.69	62	57	53	54	68	59	54	54									1225
8	.65	.80	1.45	.79	.84	1.63	.68	.77	1.45	.85	.85	1.70	1.45	1.66	55	53	53	54	59	54	54	54									1005
10	.64	.77	1.41	.78	.84	1.62	.67	.74	1.41	.84	.85	1.69	1.41	1.66	75	70	63	59	79	72	63	60									1610
13	.62	.72	1.34	.75	.84	1.59	.66	.72	1.38	.82	.85	1.67	1.36	1.63	54	52	53	55	57	54	54	55	T	T							0950
16	.74	.83	1.57	.78	.84	1.62	.84	.80	1.64	.84	.85	1.69	1.60	1.66	51	52	52	54	52	51	52	53	.37	.37							0835
17	.85	.89	1.74	.86	.84	1.70	1.10	.92	2.02	.86	.85	1.71	1.88	1.70	50	50	50	52	50	50	51	52	.39	.39							1055
18	1.16	1.05	2.21	.97	.98	1.95	.94	1.06	2.00	1.06	1.05	2.11	2.10	2.03	53	52	51	52	58	53	52	52	1.27	1.27							1210
20	.96	.95	1.91	.97	.98	1.95	.87	.91	1.78	1.00	1.06	2.06	1.84	2.00	47	46	48	50	50	46	48	50									0915
22	.87	.91	1.78	.96	.97	1.93	.80	.85	1.65	.98	1.02	2.00	1.72	1.96	53	52	52	52	57	52	51	52									1020
24	.78	.90	1.68	.95	.96	1.91	.72	.81	1.53	.95	.99	1.94	1.60	1.94	51	50	50	52	55	50	50	51									0955
27	.70	.89	1.59	.92	.93	1.85	.68	.81	1.49	.92	.95	1.87	1.54	1.86	59	56	53	52	62	57	54	54									1330
29	.69	.88	1.57	.90	.91	1.81	.68	.80	1.48	.89	.92	1.81	1.52	1.81	41	41	42	46	44	41	43	46	.03	.03							0955
Mean	.78	.87	1.65	.88	.89	1.77	.77	.83	1.60	.90	.92	1.82	1.62	1.79	55			53	58			54									
																					TOTAL		2.18	2.18							
Oct.																															
2	.65	.86	1.51	.84	.90	1.74	.67	.78	1.45	.86	.88	1.74	1.48	1.74	39	40	42	44	41	38	42	43									0900
4	.64	.85	1.49	.81	.89	1.70	.67	.76	1.43	.85	.87	1.72	1.46	1.71	51	53	48	46	53	52	47	46									1550
8	.63	.74	1.37	.77	.86	1.63	.65	.73	1.38	.85	.85	1.70	1.38	1.66	46	46	46	48	46	46	46	46									0930
11	.63	.73	1.36	.76	.85	1.61	.67	.72	1.39	.84	.85	1.69	1.38	1.65	46	46	46	46	49	46	47	49	.05	.05							1210

[1] a = artificial precipitation

Table 32.--Hydrometeorological factors, Fallow site,

August 9, 1954 to October 11, 1954.

RI- INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE FALLOW

DATE 1954	SOIL MOISTURE TIER 1 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	TIER 2 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SITE MEANS 0-6	6-12	SOIL TEMPERATURE TIER 1 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	TIER 2 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	PRECIPITATION[1] TIER 1	TIER 2	AIR TEMPERATURE MAXIMUM	MINIMUM	MEAN	DEG. DAYS	RELATIVE HUMIDITY	WIND VELOCITY	TIME
Oct.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
15	.62	.72	1.34	.75	.85	1.60	.64	.70	1.34	.83	.85	1.68	1.34	1.64	38	38	40	42	38	38	41	42									0900
18	.63	.73	1.36	.76	.84	1.60	.68	.72	1.40	.83	.85	1.68	1.38	1.64	44	43	43	45	47	44	44	46	.16	.16							1035
20	.63	.73	1.36	.75	.84	1.59	.68	.72	1.40	.83	.85	1.68	1.38	1.64	35	38	41	44	34	36	41	43	.04	.04							0745
25	.86	.90	1.76	.95	.93	1.88	.80	.86	1.66	.98	.97	1.95	1.71	1.92	34	34	33	33	39	38	35	35	1.25	1.25							
Mean	.66	.78	1.44	.80	.87	1.67	.68	.75	1.43	.86	.87	1.73	1.44	1.70	40			44	43			44									
																					TOTAL		1.50	1.50						
Nov.																															
1	.86	.92	1.78	.96	.93	1.89	.81	.86	1.67	.97	.96	1.93	1.74	1.91	43	39	38	38	47	42	38	38	.04	.04							1415
9	1.01	.99	2.00	.96	.96	1.92	.92	.96	1.88	1.01	1.01	2.02	1.94	1.97	42	42	42	42	44	43	43	43	.65	.65							1115
15	1.03	1.22	2.25	.98	1.02	2.00	.85	1.02	1.87	1.07	1.09	2.16	2.06	2.08	43	42	42	42	45	43	42	42	.54	.54							1250
Mean	.97	1.04	2.01	.97	.97	1.94	.86	.95	1.81	1.02	1.02	2.04	1.91	1.99	43			41	44			41									
																					TOTAL		1.25	1.25						
Dec.																															
3	2/	.96		.98	1.06	2.04	.72	.92	1.64	1.08	1.19	2.27		2.16	29	30	32	34	30	30	32	33									

[1] a = artificial precipitation

2/ frozen soil

Table 33.--Hydrometeorological factors, Fallow site,

October 15, 1954 to December 3, 1954.

RI– INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE WHEAT-P

DATE 1964	SOIL MOISTURE TIER 1 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SOIL MOISTURE TIER 2 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SITE MEANS 0-6	6-12	SOIL TEMPERATURE TIER 1 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	SOIL TEMPERATURE TIER 2 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	PRECIPITATION[1] TIER 1	TIER 2	AIR TEMPERATURE MAXIMUM	MINIMUM	MEAN	DEG. DAYS	RELATIVE HUMIDITY	WIND VELOCITY	TIME
Feb.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.76	.99	1.75	1.36	1.65	3.01	1.01	1.18	2.19	1.25	1.54	2.79	1.97	2.89	30	32	32	34	32	32	32	33									1455
5	.91	1.01	1.92	1.38	1.65	3.03	1.23	1.19	2.42	1.26	1.54	2.80	2.17	2.92	32	32	33	34	32	32	32	33									1010
9	1.21	1.03	2.24	1.40	1.65	3.05	1.37	1.19	2.56	1.27	1.56	2.83	2.40	2.94	32	32	33	34	32	32	32	34									1510
11	1.24	1.04	2.28	1.40	1.65	3.05	1.41	1.20	2.61	1.26	1.55	2.79	2.44	2.92	32	32	33	34	32	32	32	34									0910
15	1.29	1.10	2.39	1.30	1.65	3.13	1.45	1.23	2.68	1.26	1.52	2.78	2.54	2.96	28	29	30	30	29	29	30	30	.62	.62							1320
17	1.35	1.13	2.48	1.33	1.64	3.17	1.52	1.29	2.81	1.30	1.55	2.85	2.65	3.01	32	32	32	34	32	32	32	33	.03	.03							0930
19	1.42	1.60	3.02	1.32	1.73	3.25	1.48	1.07	2.55	1.40	1.40	2.80	2.78	3.02	35	36	35	36	32	32	32	34	.36	.36							
22	1.29	1.18	2.46	1.61	1.62	3.23	1.48	1.39	2.87	1.36	1.58	2.94	2.66	3.08	30	32	32	34	32	32	32	33	.83	.83							1215
25	1.02	.89	1.91	a/.92	1.62		1.33	1.41	2.94	1.35	1.59	2.94	2.42		32	32	32	32	32	32	32	32									
26	1.23	1.19	2.42	1.61	1.41	3.02	1.50	1.43	2.93	1.36	1.54	2.90	2.68	2.96	32	33	33	34	32	32	32	33									1350
Mean	1.17	1.12	2.29	1.42	1.61	3.10	1.40	1.26	2.66	1.31	1.53	2.84	2.47	2.97	32			34	32			33									
																					TOTAL		1.54	1.54							
Mar.																															
1	1.32	1.42	2.74	1.63	1.42	3.05	1.48	1.33	2.81	1.34	1.47	2.81	2.78	2.93	33	33	34	34	32	32	32	33									0940
3	1.19	1.18	2.31	1.64	1.41	2.95	1.19	1.18	2.37	1.29	1.42	2.71	2.34	2.83	32	32	33	34	32	32	32	33									1140
5	1.30	1.17	2.47	1.40	1.39	2.79	1.23	1.18	2.41	1.27	1.40	2.67	2.44	2.73	32	32	34	34	32	32	32	33									1355
8	1.29	1.06	2.35	1.47	1.40	2.87	1.45	1.24	2.69	1.31	1.44	2.75	2.52	2.79	33	33	33	34	35	35	35	36	.28	.28							1050
10	1.13	1.00	2.13	1.31	1.36	2.67	1.29	1.18	2.47	1.30	1.38	2.68	2.30	2.68	33	34	35	36	33	34	34	34	.84	.84							1100
12	1.20	1.02	2.22	1.36	1.33	2.69	1.19	1.10	2.29	1.19	1.35	2.53	2.26	2.56	35	33	33	34	33	33	33	33	.06	.06							1310
15	1.26	1.07	2.33	1.26	1.31	2.57	1.23	1.13	2.36	1.23	1.31	2.54	2.34	2.56	41	37	35	35	33	33	34	34									1500
17	1.18	1.05	2.23	1.23	1.32	2.60	1.14	1.10	2.24	1.18	1.28	2.46	2.24	2.53	36	36	37	38	36	36	36	36	.03	.03							
19	1.19	1.01	2.20	1.24	1.30	2.54	.99	1.06	2.05	1.16	1.28	2.43	2.13	2.48	34	34	35	36	34	34	35	36									1005
22	1.36	1.19	2.55	1.44	1.35	2.79	1.30	1.20	2.50	1.24	1.31	2.55	2.53	2.67	46	38	37	38	38	36	36	37	.35	.35							1040
24	1.33	1.08	2.31	1.39	1.36	2.75	1.15	1.11	2.26	1.22	1.32	2.54	2.28	2.64	40	37	37	38	37	36	37	38									1030
26	1.04	1.00	2.04	1.23	1.25	2.47	.98	1.02	2.00	1.16	1.25	2.41	2.02	2.44	40	39	38	38	38	38	38	38									1320
29	a/			1.15	1.30	2.45	a/	.94		1.10	1.22	2.32		2.38	30	32	34	34	30	32	34	35									1035
Mean	1.22	1.10	2.32	1.35	1.35	2.70	1.28	1.14	2.51	1.23	1.34	2.57	2.38	2.63	36			36	34			35									
																					TOTAL		1.56	1.56							
Apr.																															
1	.86	.92	1.78	1.10	1.18	2.28	.87	.98	1.85	1.11	1.18	2.29	1.82	2.38	30	32	34	34	32	33	33	34									1335
2	.89	.82	1.71	1.14	1.20	2.34	.83	.99	1.82	1.11	1.18	2.29	1.79	2.32	37	35	34	34	38	36	36	36									1425
6	1.25	1.08	2.33	1.24	1.22	2.46	1.16	1.06	2.22	1.16	1.19	2.35	2.28	2.40	39	37	36	35	40	38	37	37	.38	.38							1040
7	1.38	1.03	2.41	1.26	1.23	2.49	1.16	1.06	2.21	1.17	1.20	2.37	2.31	2.43	38	36	37	38	36	36	36	36	.84	.84							1005
9	1.25	1.03	2.28	1.21	1.23	2.44	1.11	1.04	2.15	1.16	1.20	2.36	2.22	2.40	43	39	38	38	40	38	37	37	.09	.09							1440
12	.96	.96	1.92	1.16	1.25	2.41	.97	.99	1.96	1.15	1.20	2.35	1.96	2.37	48	45	42	40	47	44	40	39									1405
13	.98	.96	1.94	1.14	1.21	2.35	.99	1.00	1.99	1.13	1.20	2.33	1.96	2.34	54	49	44	42	50	46	43	41	.08	.08							1335
14	.93	.94	1.87	1.10	1.20	2.30	.96	.97	1.93	1.10	1.20	2.30	1.90	2.30	40	39	40	41	39	38	39	40									1115

a/ = artificial precipitation

Table 34.--Hydrometeorological factors, Wheat site,

February 2, 1954 to April 14, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE WHEAT-P

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Apr.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
16	.80	.90	1.70	1.09	1.20	2.29	.87	.94	1.81	1.07	1.17	2.24	1.76	2.26	59	50	44	41	52	46	41	40									1545
19	.76	.88	1.64	1.04	1.18	2.22	.83	.89	1.72	1.03	1.15	2.18	1.68	2.20	44	43	42	42	43	42	41	42									1215
21	.75	.88	1.63	1.03	1.18	2.21	.81	.89	1.70	1.01	1.15	2.14	1.66	2.18	51	42	40	41	44	40	40	40	.03	.03							1125
24	.74	.85	1.59	1.01	1.14	2.15	.79	.86	1.65	.99	1.11	2.10	1.62	2.12	52	44	41	41	44	40	39	40									1155
26	.74	.84	1.58	.98	1.11	2.09	.77	.85	1.62	.97	1.08	2.05	1.60	2.07	43	40	40	41	40	39	39	40	.11	.11							1145
27	.95	.90	1.85	1.02	1.10	2.12	.84	.88	1.72	.98	1.08	2.06	1.78	2.09	54	47	42	41	48	44	40	40	.34	.34							1250
28	.90	.89	1.79	.99	1.09	2.08	.80	.88	1.68	.98	1.08	2.06	1.84	2.07	45	43	42	42	42	41	40	40									1305
30	.78	.89	1.67	1.04	1.10	2.14	.78	.86	1.64	.98	1.07	2.05	1.66	2.10	52	45	40	39	44	41	38	38									1550
Mean	.94	.92	1.86	1.10	1.18	2.28	.91	.95	1.86	1.07	1.15	2.22	1.86	2.25	46			39	42			39									
																					TOTAL		1.27	1.27							
May																															
3	.74	.85	1.59	.97	1.06	2.03	.76	.84	1.60	.96	1.05	2.01	1.60	2.02	49	45	44	43	46	44	42	41									1320
5	.74	.84	1.58	.97	1.05	2.02	.76	.84	1.60	.96	1.05	2.01	1.59	2.02	70	56	48	44	58	51	45	43	.05	.05							1515
7	.71	.91	1.62	.94	1.03	1.97	.74	.81	1.55	.94	1.04	1.98	1.58	1.98	73	57	50	48	60	53	48	46									1330
10	.68	.89	1.57	.90	1.00	1.90	.71	.81	1.52	.88	1.01	1.89	1.54	1.90	56	53	51	50	55	52	50	49									1445
12	.75	.80	1.55	.90	.99	1.89	.73	.79	1.52	.91	1.00	1.91	1.54	1.90	55	50	48	47	54	48	46	45	.23	.23							1500
13	.74	.79	1.53	.90	.98	1.88	.72	.78	1.50	.90	.99	1.89	1.52	1.88	69	58	50	47	61	54	47	45									1530
14	.71	.77	1.48	.88	.97	1.85	.71	.76	1.47	.88	.98	1.86	1.48	1.86	75	60	51	48	63	55	49	46									1445
17	.60	.70	1.30	.82	.91	1.73	.62	.72	1.34	.83	.92	1.75	1.32	1.74	82	65	57	54	69	61	55	52									1355
18	.61	.66	1.27	.79	.89	1.68									82	71	62	56													1550
19	.56	.66	1.22	.78	.88	1.66	.55	.68	1.23	.79	.88	1.67	1.22	1.66	69	61	58	57	63	59	57	56									1045
20	.57	.64	1.21	.74	.85	1.59	.52	.66	1.18	.77	.84	1.61	1.20	1.60	71	64	60	57	68	63	58	56									1435
21	.55	.64	1.19	.72	.83	1.55	.51	.65	1.17	.76	.84	1.60	1.18	1.58	64	60	57	56	61	57	56	55									1405
22	.57	.65	1.22	.74	.83	1.57	.52	.66	1.18	.76	.83	1.59	1.20	1.58	47	50	53	55	48	50	53	53	.22	.22							0710
24	.54	.61	1.15	.70	.77	1.47	.50	.64	1.14	.73	.80	1.53	1.14	1.50	76	63	56	55	66	59	55	53									1330
25	1.11	.71	1.82	.70	.74	1.44	.56	.66	1.22	.73	.79	1.52	1.52	1.48	60	56	55	54	58	56	54	54	.61	.61							1530
27	1.05	.87	1.92	.77	.78	1.55	.94	.76	1.70	.76	.79	1.55	1.81	1.55	46	44	45	48	44	44	45	48	.27	.27							1025
28	.96	.86	1.82	.80	.78	1.58	.87	.77	1.64	.78	.79	1.57	1.73	1.58	66	58	51	47	62	55	49	47									1535
30	.82	.78	1.60	.79	.78	1.57	.74	.75	1.49	.78	.79	1.57	1.54	1.57	55	52	52	52	52	51	51	51	.03	.03							1105
31	.80	.76	1.56	.79	.78	1.57	.73	.74	1.47	.77	.79	1.56	1.52	1.56	44	48	50	50	48	48	49	50									0610
Mean	.73	.76	1.48	.82	.89	1.71	.64	.70	1.34	.78	.85	1.63	1.38	1.63	64			51	57			49									
																					TOTAL		1.29	1.29							
June																															
1	1.24	.96	2.20	.81	.78	1.59	1.01	.86	1.87	.78	.79	1.57	2.04	1.58	48	44	45	48	45	44	45	47	.71	.71							1115
2	.97	.92	1.89	.87	.78	1.65	.94	.87	1.81	.81	.79	1.60	1.85	1.62	69	58	51	48	62	54	49	47									1435
4	1.27	1.04	2.31	.92	.80	1.72	1.04	.94	1.98	.83	.80	1.63	2.14	1.68	55	52	52	52	53	52	52	52	.59	.59							1410
7	1.24	1.04	2.28	.97	.87	1.84	1.02	.94	1.96	.92	.82	1.74	2.12	1.79	49	48	48	48	48	47	47		.43	.43							1100

[1]a = artificial precipitation

Table 35.--Hydrometeorological factors, Wheat site,

April 16, 1954 to June 7, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE WHEAT-P

DATE	SOIL MOISTURE														SOIL TEMPERATURE								PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
	TIER 1						TIER 2						SITE MEANS		TIER 1				TIER 2												
	Soil Depth (Inches)						Soil Depth (Inches)								Soil Depth (Inches)				Soil Depth (Inches)												
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
June																															
8	1.11	.99	2.10	.97	.89	1.86	.98	.94	1.92	.94	.85	1.79	2.01	1.82	51	49	49	49	49	47	47	48	T	T							1010
9	.96	.94	1.90	.97	.90	1.87	.92	.90	1.82	.93	.85	1.78	1.86	1.82	69	61	55	52	64	58	53	51									1435
10	.97	.93	1.90	.96	.90	1.86	.91	.90	1.81	.92	.85	1.77	1.86	1.82	55	54	54	53	54	54	53	52	.07	.07							1200
11	.97	.93	1.90	.96	.90	1.86	.90	.89	1.79	.92	.85	1.77	1.84	1.82	51	50	50	52	50	50	50	51									0845
12	.85	.89	1.74	.95	.89	1.84	.84	.84	1.68	.90	.85	1.75	1.71	1.80	61	60	56	54	61	58	55	52	T	T							1820
14	.79	.86	1.65	.93	.89	1.82	.77	.85	1.60	.87	.84	1.71	1.62	1.76	56	52	52	53	53	51	51	52									0940
16	.81	.84	1.65	.89	.88	1.77	.76	.83	1.59	.85	.83	1.68	1.62	1.72	57	55	52	52	56	53	51	51	.17	.17							1525
18	.71	.78	1.49	.86	.87	1.73	.73	.77	1.50	.83	.82	1.65	1.50	1.69	63	52	49	50	56	50	48	49									1155
20	.63	.74	1.37	.84	.86	1.70	.67	.73	1.40	.80	.80	1.60	1.38	1.65	57	54	53	53	54	52	51	51									1115
22	.53	.66	1.19	.78	.81	1.59	.59	.69	1.28	.76	.77	1.53	1.24	1.56	82	66	60	56	71	63	57	55									1345
23	.52	.65	1.17	.76	.78	1.54	.56	.68	1.24	.74	.76	1.50	1.20	1.52	72	65	60	57	69	63	58	56									1445
25	.48	.61	1.09	.72	.75	1.47	.52	.65	1.17	.72	.73	1.45	1.13	1.46	78	66	61	58	70	63	59	57									1330
27	.50	.60	1.10	.71	.73	1.44	.52	.65	1.17	.70	.71	1.41	1.14	1.42	62	58	58	58	60	57	57	57	.11	.11							1120
28	.50	.59	1.09	.69	.71	1.40	.52	.64	1.16	.69	.70	1.39	1.12	1.40	61	57	56	56	58	56	55	55	T	T							1450
30	.47	.57	1.04	.68	.69	1.37	.50	.61	1.11	.68	.68	1.36	1.08	1.36	68	61	59	58	63	59	57	56									1115
Mean	.82	.82	1.63	.85	.82	1.68	.77	.80	1.57	.82	.79	1.61	1.60	1.65	61			53	58			52									
																						TOTAL	2.08	2.08							
July																															
2	.63	.61	1.24	.60	.68	1.28	.54	.63	1.17	.68	.68	1.36	1.20	1.32	60	56	55	56	56	55	54	54	.34	.34							
3	.57	.58	1.15	.66	.66	1.32	.52	.63	1.15	.67	.66	1.33	1.15	1.32	79	71	63	58	73	65	60	56									1635
6	.45	.53	.98	.64	.64	1.28	.46	.59	1.05	.64	.64	1.28	1.02	1.28	75	66	64	62	70	64	63	62									1120
7	.42	.49	.91	.62	.62	1.24	.44	.56	1.00	.64	.63	1.27	.96	1.26	81	70	65	64	73	69	64	64									1220
9	.42	.48	.90	.61	.61	1.22	.43	.56	.99	.62	.63	1.25	.94	1.24	65	63	63	63	63	62	62	62	.10	.10							1005
11	.92	.78	1.70	.64	.62	1.26	.77	.63	1.40	.63	.62	1.25	1.55	1.26	58	57	59	60	57	57	58	59	.70	.70							0830
12	.84	.77	1.61	.66	.61	1.27	.74	.66	1.40	.64	.62	1.26	1.50	1.26	64	61	61	61	62	60	60	60									0940
14	.63	.66	1.29	.65	.60	1.25	.64	.63	1.27	.64	.61	1.25	1.28	1.25	70	64	63	63	65	63	62	61									1055
16	.50	.58	1.08	.62	.60	1.22	.53	.59	1.12	.62	.60	1.22	1.10	1.22	85	73	66	64	75	70	64	63									1255
19	.44	.59	1.03	.59	.60	1.19	.47	.57	1.04	.59	.59	1.18	1.04	1.18	69	65	65	65	66	64	64	64									0940
21	.42	.48	.90	.56	.58	1.14	.45	.52	.97	.57	.59	1.16	.94	1.15	61	61	62	63	61	61	62	63									1200
23	.40	.46	.86	.56	.58	1.14	.43	.51	.94	.56	.58	1.14	.90	1.14	58	58	60	61	58	59	60	61	T	T							0755
26	.33	.42	.75	.52	.56	1.08	.40	.49	.89	.55	.57	1.12	.82	1.10	68	64	64	64	64	64	64	64									0950
28	.30	.42	.72	.53	.56	1.09	.39	.48	.87	.54	.57	1.11	.80	1.10	70	63	62	63	64	62	62	63									1100
30	.27	.41	.68	.51	.54	1.05	.36	.45	.81	.54	.56	1.10	.74	1.08	84	72	66	64	76	70	64	64									1330
Mean	.50	.55	1.05	.60	.60	1.20	.50	.57	1.07	.61	.61	1.22	1.06	1.21	70			62	66			61									
																						TOTAL	1.14	1.14							

[1] a = artificial precipitation

Table 36.--Hydrometeorological factors, Wheat site,

June 8, 1954 to July 30, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE WHEAT-P

DATE 1954	SOIL MOISTURE TIER 1 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SOIL MOISTURE TIER 2 Soil Depth (Inches) 0-3	3-6	0-6	6-9	9-12	6-12	SITE MEANS 0-6	6-12	SOIL TEMPERATURE TIER 1 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	SOIL TEMPERATURE TIER 2 Soil Depth (Inches) 1-1/2	4-1/2	7-1/2	10-1/2	PRECIPITATION[1] TIER 1	TIER 2	AIR TEMPERATURE MAXIMUM	MINIMUM	MEAN	DEG. DAYS	RELATIVE HUMIDITY	WIND VELOCITY	TIME
Aug.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.26	.39	.65	.49	.56	1.05	.34	.46	.80	.54	.57	1.11	.72	1.08	76	70	68	66	71	68	66	65										1055
4	.26	.40	.66	.52	.54	1.06	.34	.45	.79	.52	.56	1.08	.72	1.07	68	62	62	64	64	62	62	63										1025
6	.26	.38	.64	.50	.54	1.04	.31	.44	.75	.53	.56	1.09	.70	1.06	81	70	65	64	72	68	64	64										1235
9	.26	.38	.64	.49	.55	1.04	.29	.45	.74	.53	.57	1.10	.69	1.07	72	65	65	65	69	65	64	64										1045
11	.26	.37	.63	.49	.54	1.03	.28	.45	.73	.53	.56	1.09	.68	1.06	64	63	63	64	63	62	63	64										0920
13	.26	.37	.63	.49	.55	1.04	.28	.44	.72	.53	.57	1.10	.68	1.07	61	62	64	65	63	64	64	64										0715
16	.26	.36	.62	.48	.55	1.03	.27	.44	.71	.52	.57	1.09	.66	1.06	60	60	61	62	59	59	60	61	.19	.19								0935
18	.28	.36	.64	.48	.57	1.05	.28	.45	.73	.55	.57	1.12	.70	1.08	73	66	64	61	71	65	62	61	.08	.08								1520
19	.33	.36	.69	.48	.56	1.04	.29	.44	.73	.52	.56	1.08	.71	1.06	62	62	62	62	62	62	62	62										1125
20	.74	.38	1.12	.48	.55	1.03	.31	.45	.76	.52	.57	1.09	.94	1.06	64	61	61	60	62	60	59	59	.45	.45								1505
21	.75	.54	1.29	.48	.55	1.03	.39	.45	.84	.53	.58	1.11	1.06	1.07	63	58	58	59	59	57	57	57	.05	.05								1155
23	.68	.64	1.32	.51	.56	1.07	.47	.49	.96	.55	.58	1.13	1.14	1.10	60	56	56	57	57	56	56	57	.07	.07								1005
24	1.12	.82	1.94	.51	.57	1.08	.61	.50	1.11	.53	.57	1.10	1.52	1.09	61	57	56	56	58	56	56	56	.56	.56								1420
26	.90	.88	1.78	.65	.57	1.22	.89	.70	1.59	.55	.57	1.12	1.68	1.17	61	58	56	56	59	56	55	55	.19	.19								1600
30	.75	.81	1.56	.73	.58	1.31	.74	.70	1.44	.64	.58	1.22	1.50	1.26	60	59	60	60	59	58	59	59										0840
31	.94	.88	1.82	.75	.58	1.33	.94	.74	1.68	.66	.59	1.25	1.75	1.29	61	59	59	60	60	58	58	59	.51	.51								1145
Mean	.52	.52	1.04	.53	.56	1.09	.44	.50	.94	.55	.57	1.12	.99	1.10	65			61	63			61										
																					TOTAL		2.10	2.10							
Sept.																																
2	.84	.87	1.71	.82	.59	1.41	.87	.76	1.63	.68	.60	1.28	1.67	1.34	61	57	57	59	59	56	56	56										1015
3	.82	.86	1.68	.79	.62	1.41	.82	.77	1.59	.69	.60	1.29	1.64	1.35	55	56	58	60	56	56	57	57	.12	.12								0915
6	.78	.84	1.62	.83	.63	1.46	.74	.75	1.49	.69	.61	1.30	1.56	1.38	64	56	53	54	57	54	52	54										1230
8	.73	.80	1.53	.83	.64	1.47	.71	.73	1.44	.69	.61	1.30	1.48	1.38	55	52	52	54	54	52	52	54										1010
10	.70	.78	1.48	.82	.64	1.46	.68	.72	1.40	.69	.62	1.31	1.44	1.38	74	69	62	57	70	64	59	56										1615
13	.64	.76	1.40	.80	.64	1.44	.63	.69	1.32	.69	.62	1.31	1.36	1.38	56	52	54	56	52	52	54	56	T	T								1000
16	.85	.80	1.65	.80	.64	1.44	.66	.69	1.35	.69	.62	1.31	1.50	1.38	52	51	52	55	51	51	52	54	.37	.37								0845
17	1.13	.89	2.02	.81	.65	1.46	.93	.74	1.67	.69	.63	1.32	1.84	1.39	51	51	52	54	50	50	51	52	.39	.39								1100
18	1.06	1.00	2.06	1.00	.90	1.90	1.06	1.00	2.06	1.12	.96	2.08	2.06	1.99	56	52	51	52	52	50	50	51	1.27	1.27								1215
20	.99	.94	1.93	1.00	.92	1.92	1.00	.96	1.96	1.02	.96	1.98	1.94	1.95	48	46	49	51	45	47	49	51										0925
22	.94	.92	1.86	1.00	.91	1.91	.97	.95	1.92	.99	.96	1.95	1.89	1.93	56	52	52	52	52	51	51	52										1030
24	.90	.90	1.80	1.00	.91	1.91	.94	.94	1.88	.97	.95	1.92	1.84	1.92	52	48	50	52	48	48	50	51										1000
27	.83	.88	1.71	.99	.89	1.88	.89	.92	1.81	.93	.93	1.86	1.76	1.87	57	53	53	52	57	53	52	52										1340
29	.83	.88	1.71	.98	.90	1.88	.88	.91	1.79	.91	.92	1.83	1.75	1.86	43	40	44	48	39	40	44	47	.03	.03								1005
Mean	.86	.87	1.73	.89	.75	1.64	.84	.82	1.66	.82	.76	1.57	1.69	1.61	56			54	53			53										
																					TOTAL		2.18	2.18							

[1]a=artificial precipitation

Table 37.--Hydrometeorological factors, Wheat site,
August 2, 1954 to September 29, 1954.

RI – INT
Infiltration Project

HYDROMETEOROLOGICAL FACTORS

SITE WHEAT-P

DATE	SOIL MOISTURE TIER 1 Soil Depth (Inches)						SOIL MOISTURE TIER 2 Soil Depth (Inches)						SITE MEANS		SOIL TEMPERATURE TIER 1 Soil Depth (Inches)				SOIL TEMPERATURE TIER 2 Soil Depth (Inches)				PRECIPITATION[1]		AIR TEMPERATURE				RELATIVE HUMIDITY	WIND VELOCITY	TIME
1954	0-3	3-6	0-6	6-9	9-12	6-12	0-3	3-6	0-6	6-9	9-12	6-12	0-6	6-12	1-1/2	4-1/2	7-1/2	10-1/2	1-1/2	4-1/2	7-1/2	10-1/2	TIER 1	TIER 2	MAXIMUM	MINIMUM	MEAN	DEG. DAYS			
Oct.	(Inches)														(Degrees F)								(Inches)		(Degrees F)				(%)	(mph)	(Hours)
2	.80	.86	1.66	.98	.90	1.88	.83	.89	1.72	.90	.92	1.82	1.69	1.85	39	38	41	44	37	38	40	44									0905
4	.77	.85	1.62	.98	.90	1.88	.79	.88	1.67	.88	.92	1.80	1.64	1.84	52	48	45	44	48	45	44	44									1555
8	.74	.82	1.56	.96	.89	1.85	.75	.86	1.61	.85	.90	1.75	1.58	1.80	45	44	46	49	44	44	46	48									0945
11	.74	.81	1.55	.95	.89	1.84	.75	.84	1.59	.84	.90	1.74	1.57	1.79	45	45	45	46	46	44	44	45	.05	.05							1210
15	.71	.79	1.50	.93	.88	1.81	.74	.82	1.56	.84	.88	1.72	1.53	1.76	36	37	40	42	36	37	39	41									0905
18	.79	.80	1.59	.93	.88	1.81	.75	.82	1.57	.84	.87	1.71	1.58	1.76	44	41	43	44	41	41	43	44	.16	.16							1040
20	.80	.82	1.62	.93	.88	1.81	.75	.82	1.57	.84	.86	1.70	1.60	1.76	34	37	40	44	36	38	40	44	.04	.04							0745
25	1.00	.92	1.92	1.00	.92	1.92	.96	.96	1.92	1.03	.97	2.00	1.92	1.96	36	34	34	35	32	32	32	34	1.25	1.25							1000
Mean	.79	.83	1.63	.96	.89	1.85	.79	.86	1.65	.88	.90	1.78	1.64	1.82	41			44	40			43									
																					TOTAL		1.50	1.50						
Nov.																															
1	1.00	.91	1.91	1.00	.93	1.93	.95	.95	1.90	1.01	.99	2.00	1.90	1.96	40	36	37	37	36	34	35	36	.04	.04							1420
9	1.10	.96	2.06	1.00	.95	1.95	1.02	.99	2.01	1.10	1.03	2.13	2.04	2.04	43	41	42	43	42	40	40	41	.65	.65							1115
15	1.10	.95	2.05	1.00	.98	1.98	1.03	1.01	2.04	1.12	1.06	2.18	2.04	2.08	44	43	42	42	43	40	40	41	.54	.54							
Mean	1.07	.94	2.01	1.00	.95	1.95	1.00	.98	1.98	1.08	1.03	2.10	1.99	2.03	42			42	40			39									
																					TOTAL		1.23	1.23						
Dec.																															
7	.95	.89	1.84	.98	1.06	2.04	2/	.96		1.03	1.20	2.23		2.14	30	29	32	33	30	30	32	33	1.21	1.21							0825

[1] a = artificial precipitation

2/ frozen soil

Table 38.--Hydrometeorological factors, Wheat site,

October 2, 1954 to December 7, 1954.

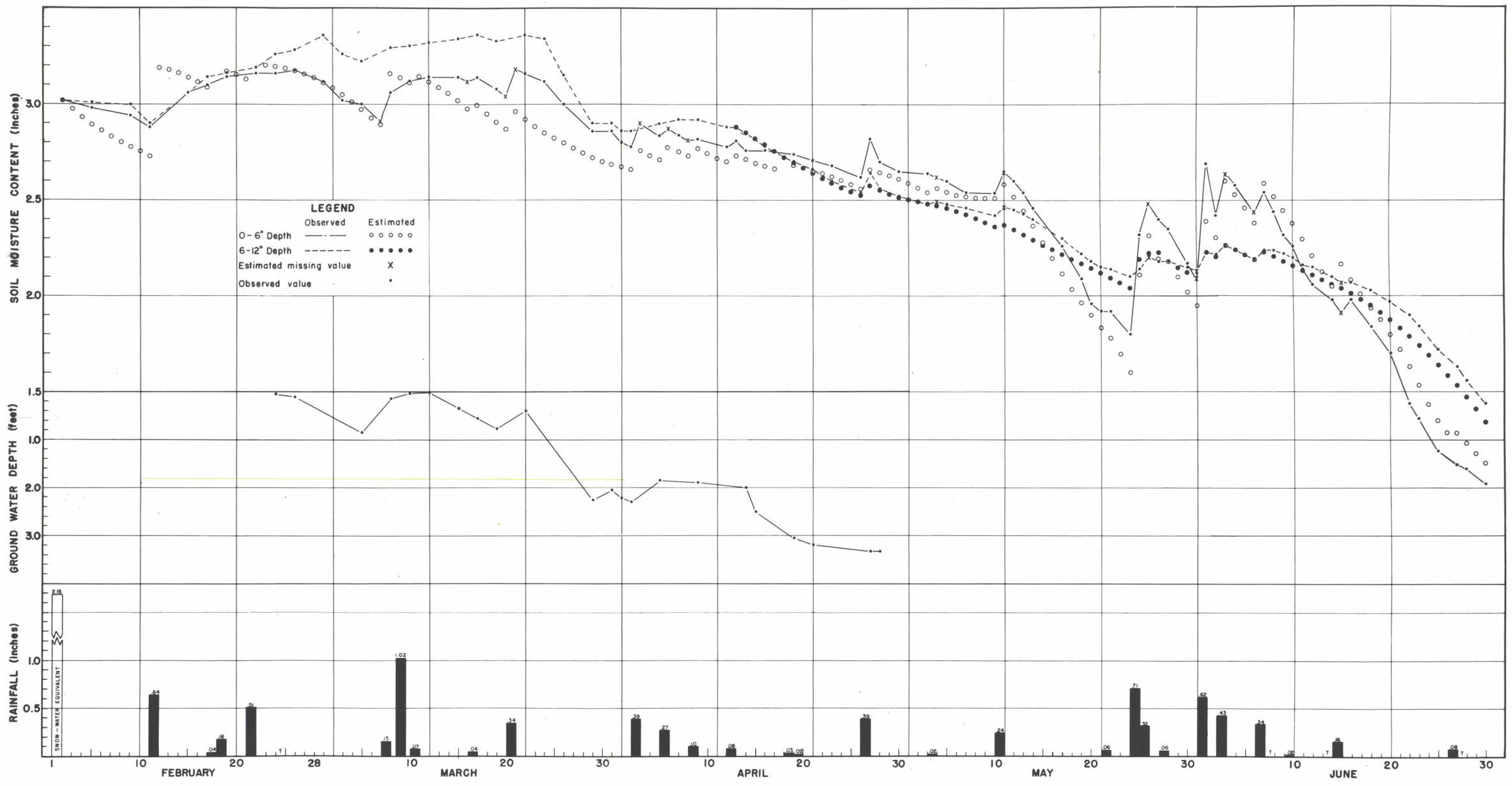

Figure 16. Observed versus estimated soil moisture content, precipitation, and ground water depth at Valley site February through June.

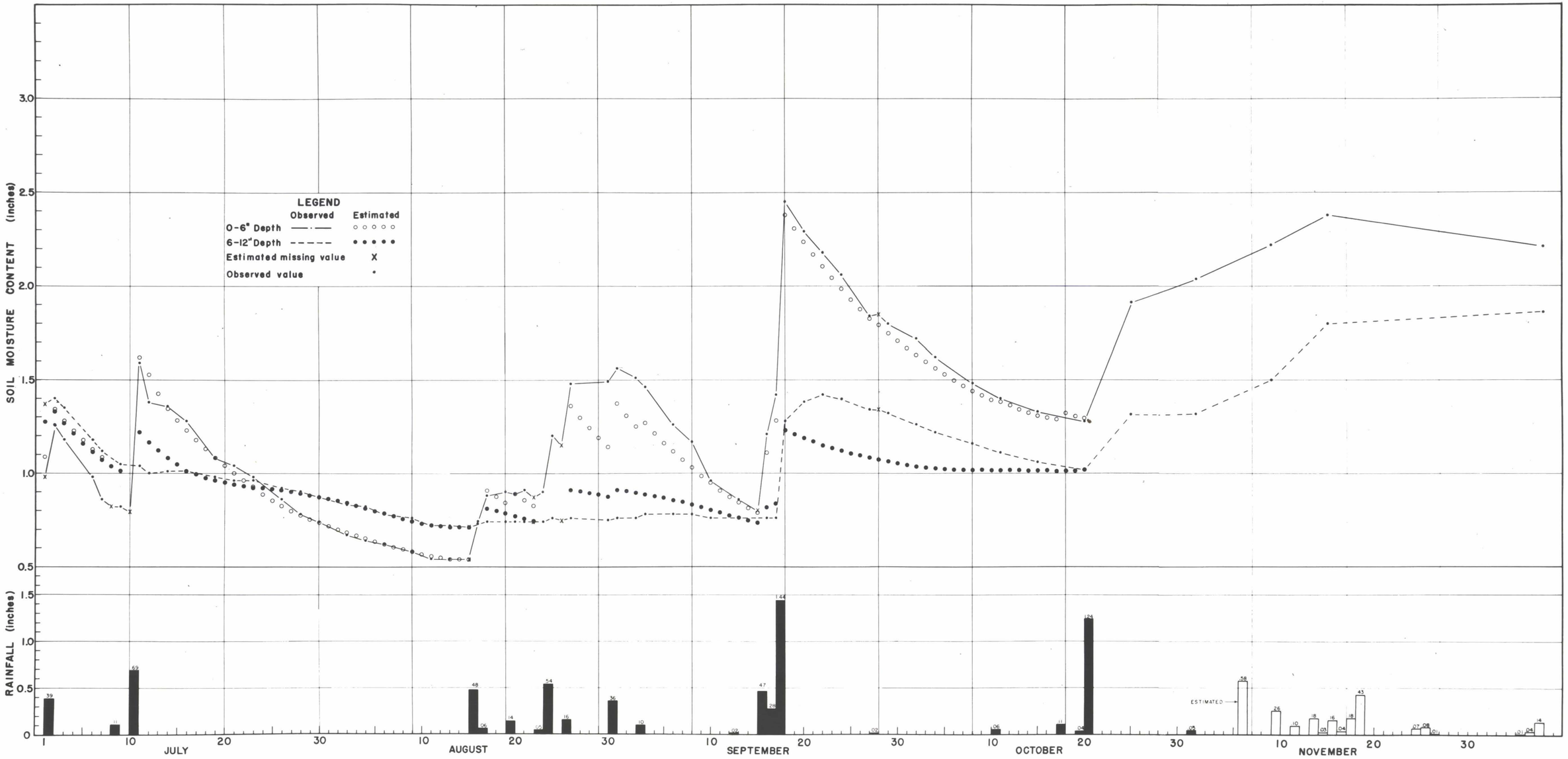

Figure 17. Observed versus estimated soil moisture content, and precipitation at Valley site July through December.

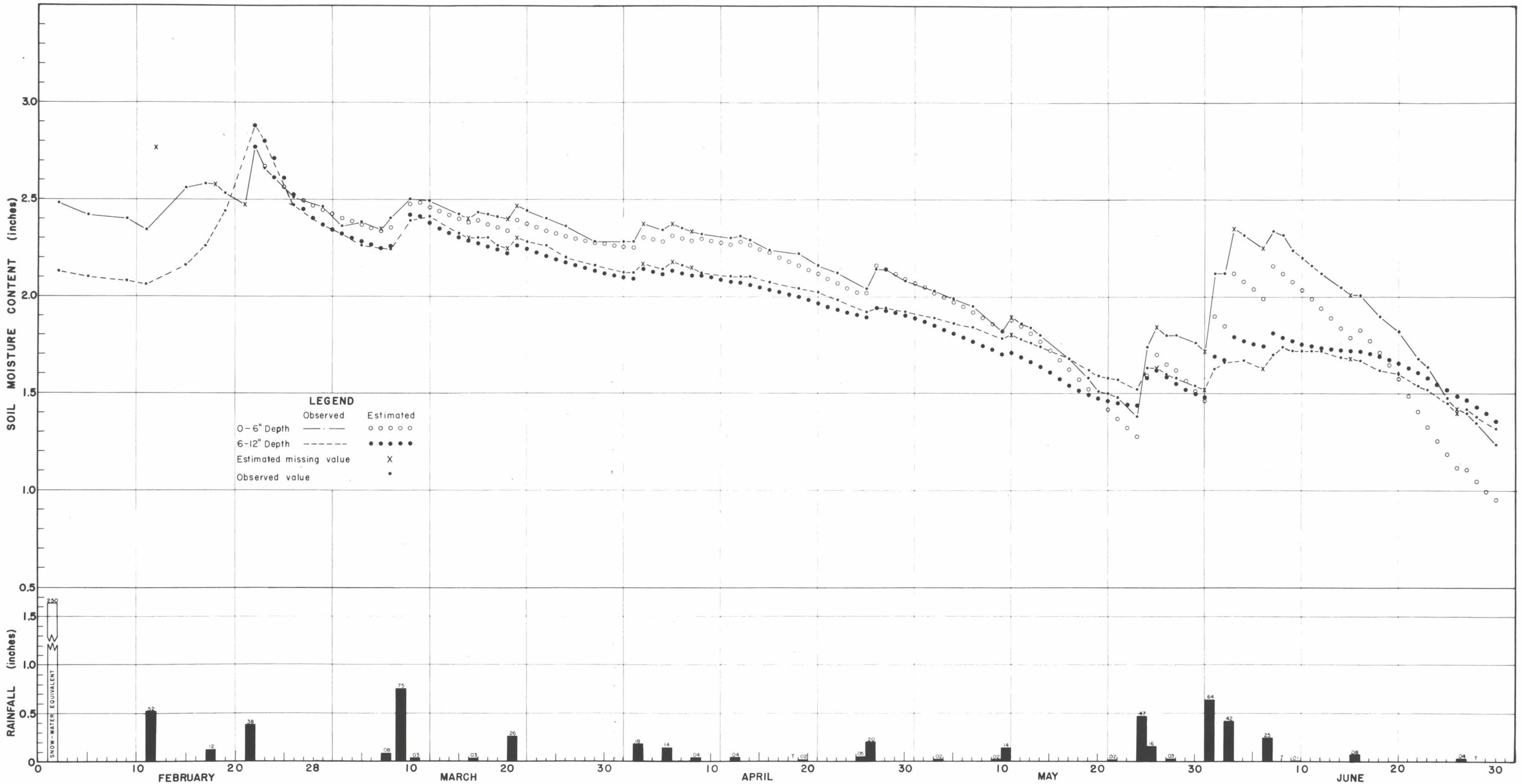

Figure 18. Observed versus estimated soil moisture content, and precipitation at Forest site February through June.

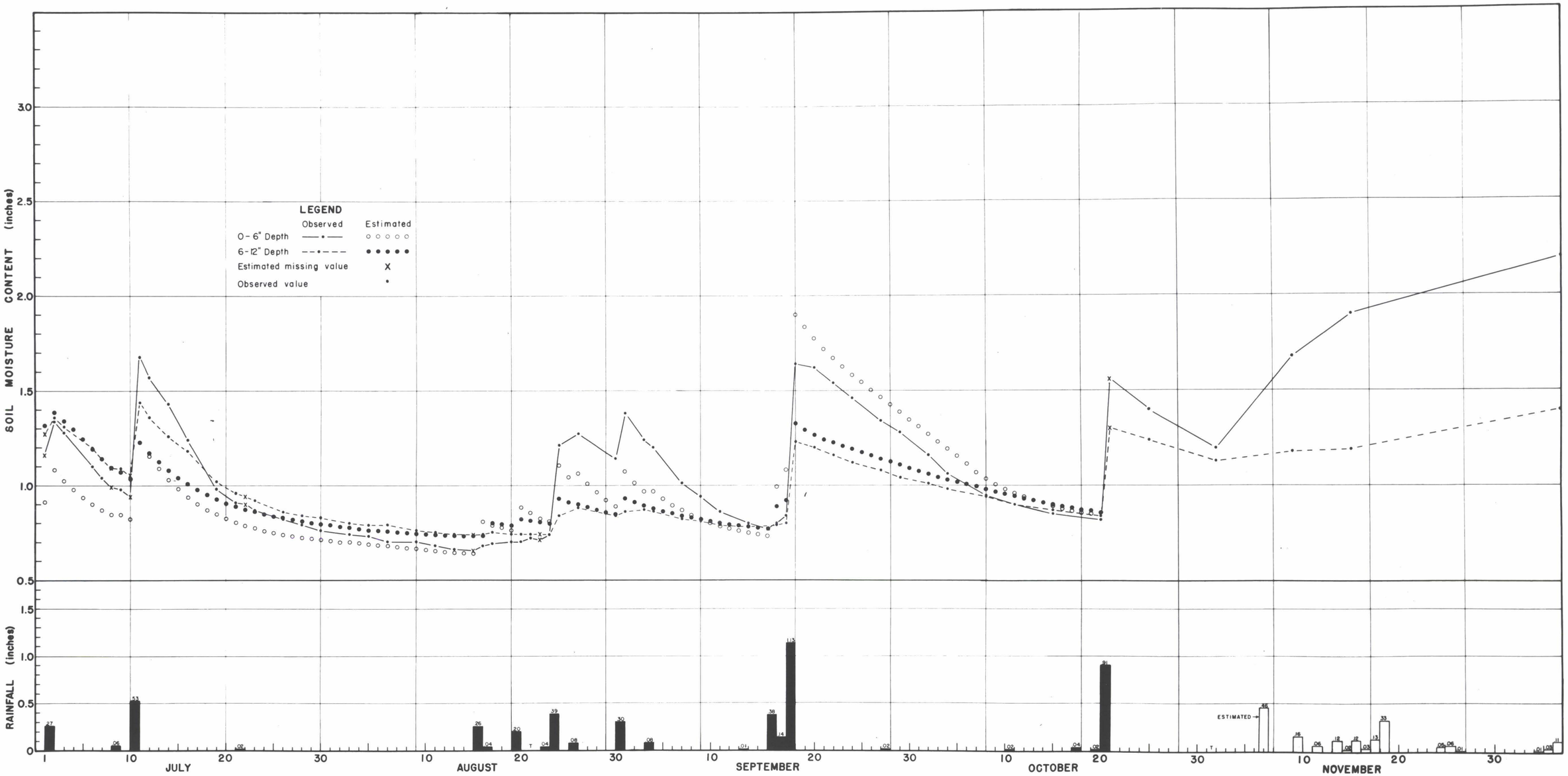

Figure 19. Observed versus estimated soil moisture content and precipitation at Forest site July through December.

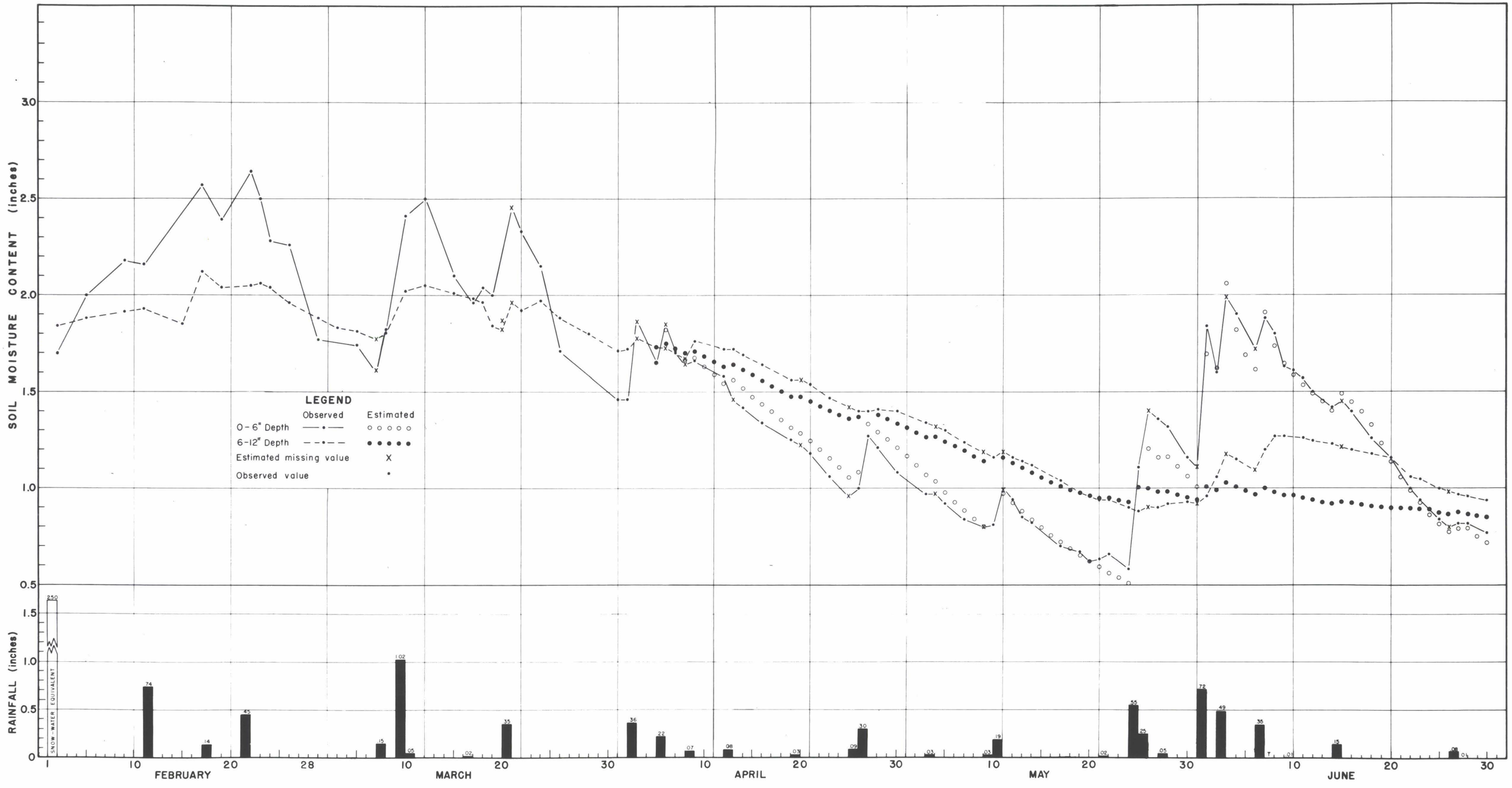

Figure 20. Observed versus estimated soil moisture content and precipitation at Couse site February through June.

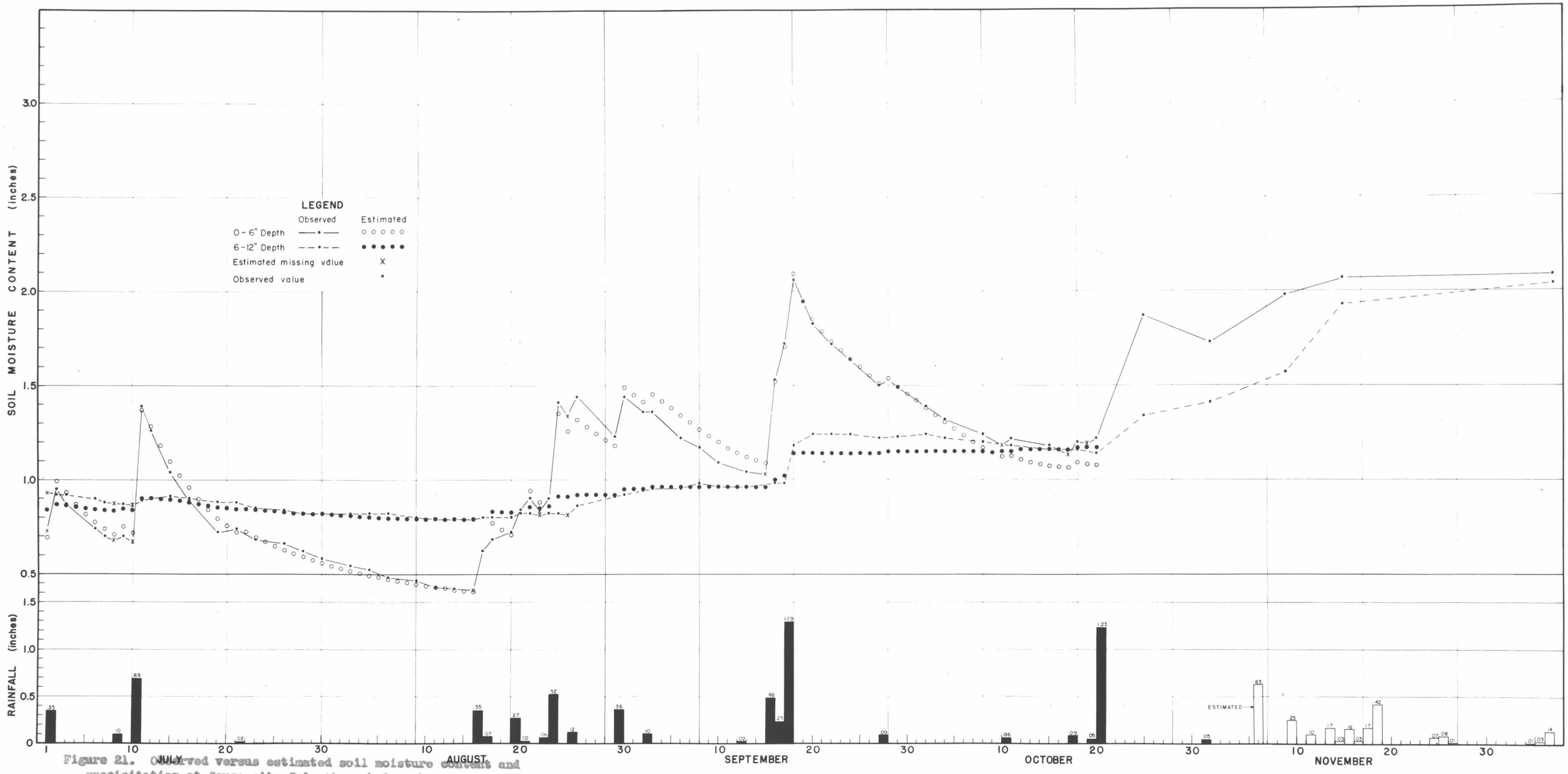

Figure 21. Observed versus estimated soil moisture content and precipitation at Couse site July through December.

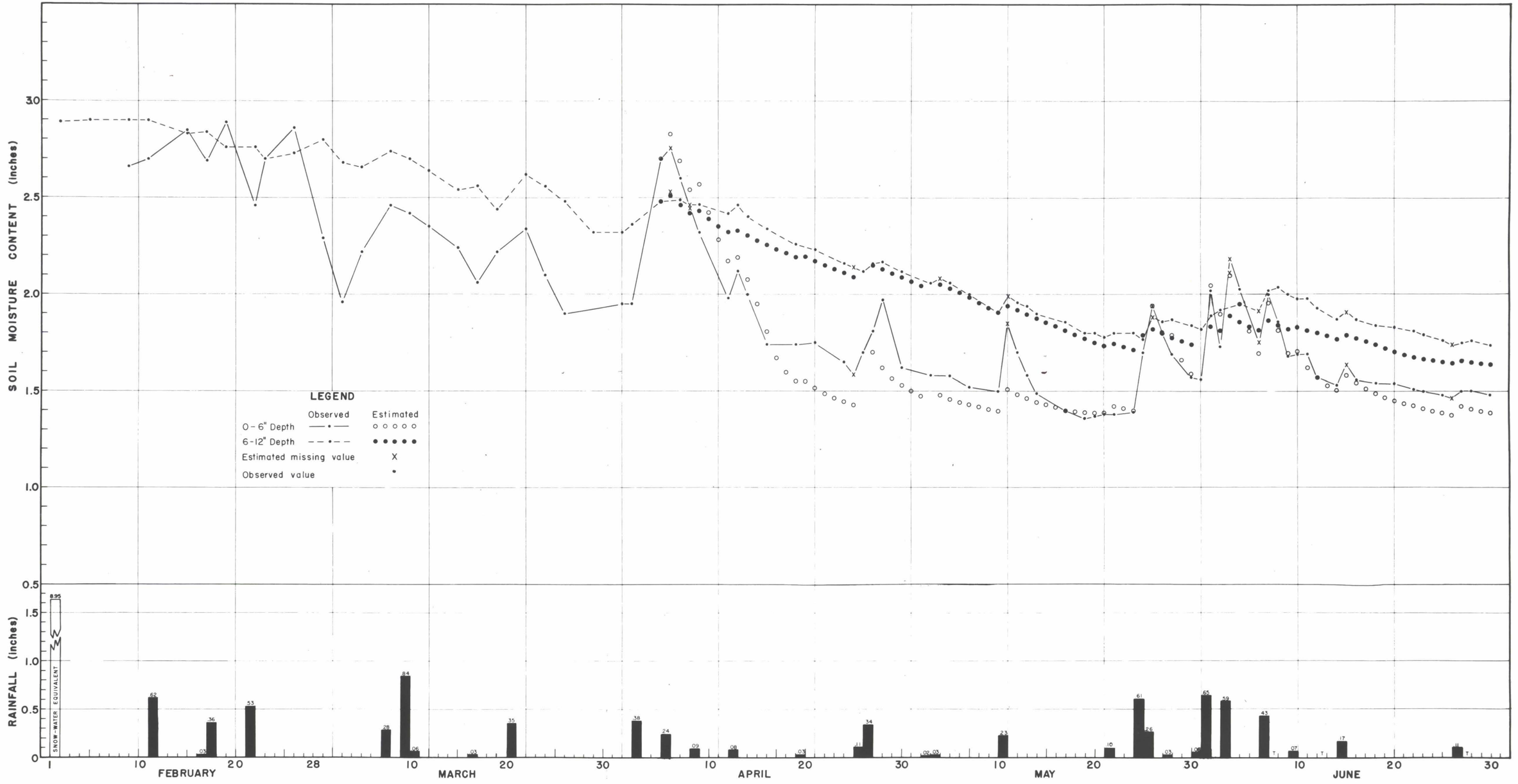

Figure 22. Observed versus estimated soil moisture content and precipitation at Fallow site February through June.

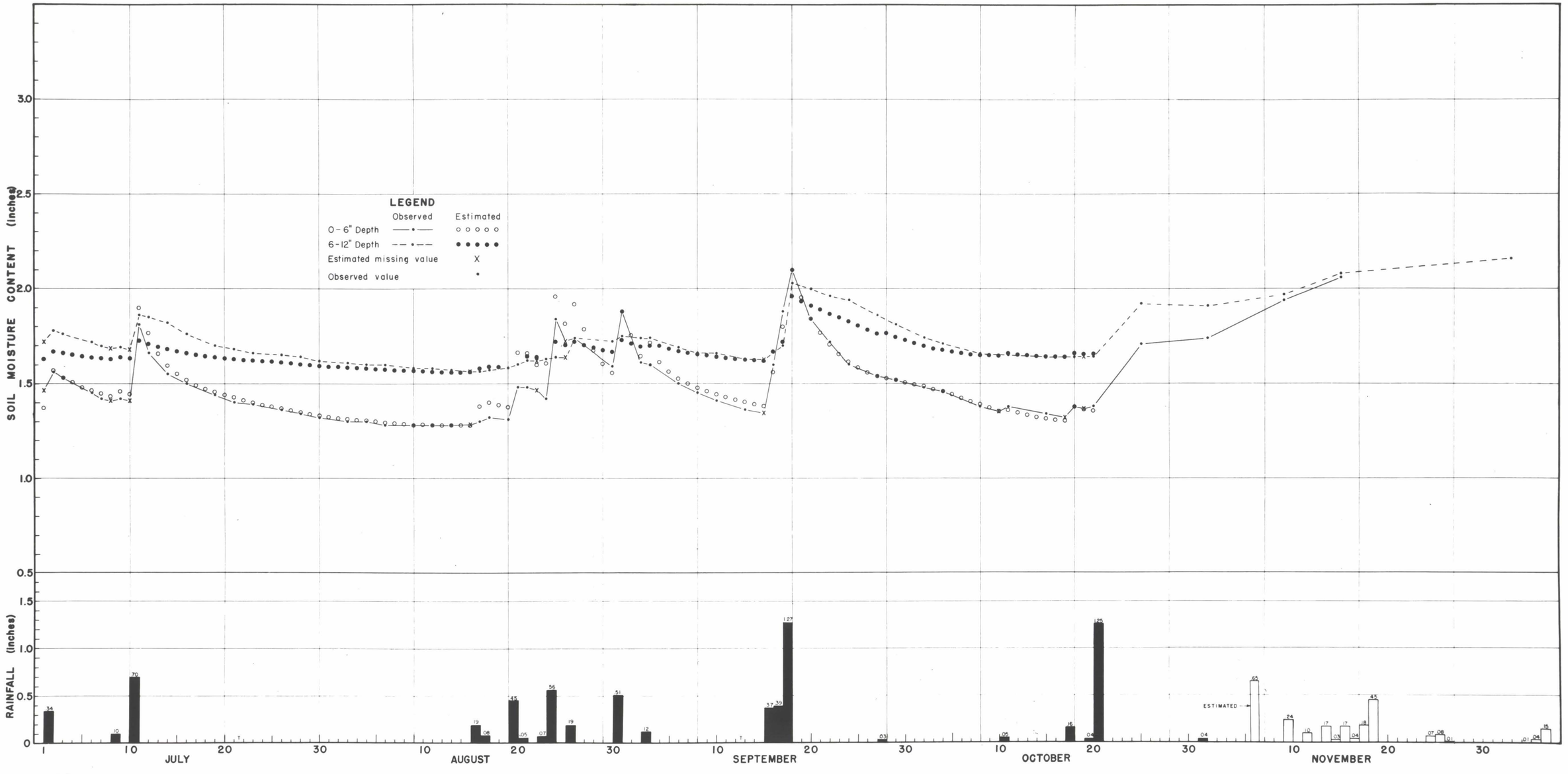

Figure 23. Observed versus estimated soil moisture content and precipitation at Fallow site July through December.

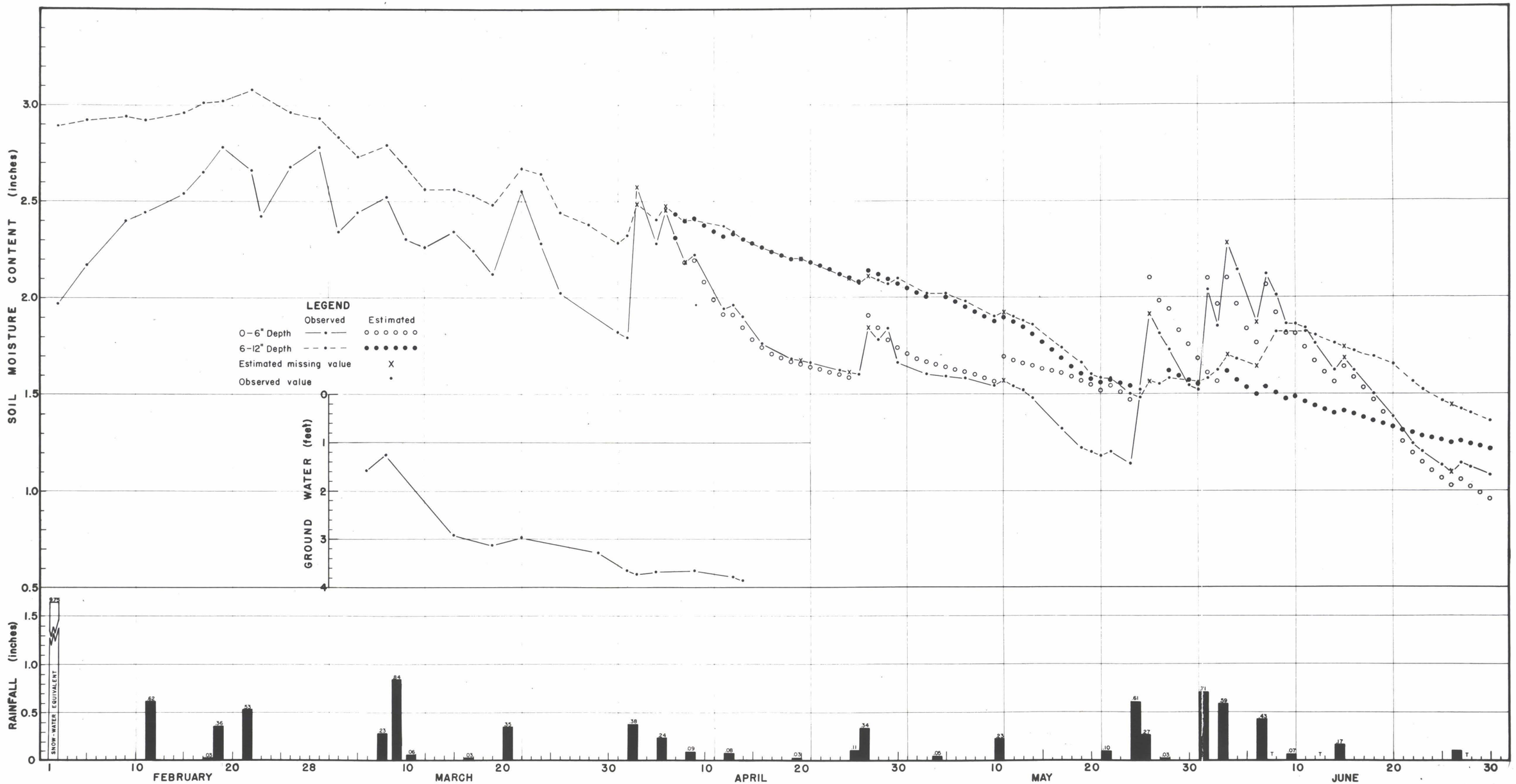

Figure 24. Observed versus estimated soil moisture content, precipitation, and ground water level at Wheat site February through June.

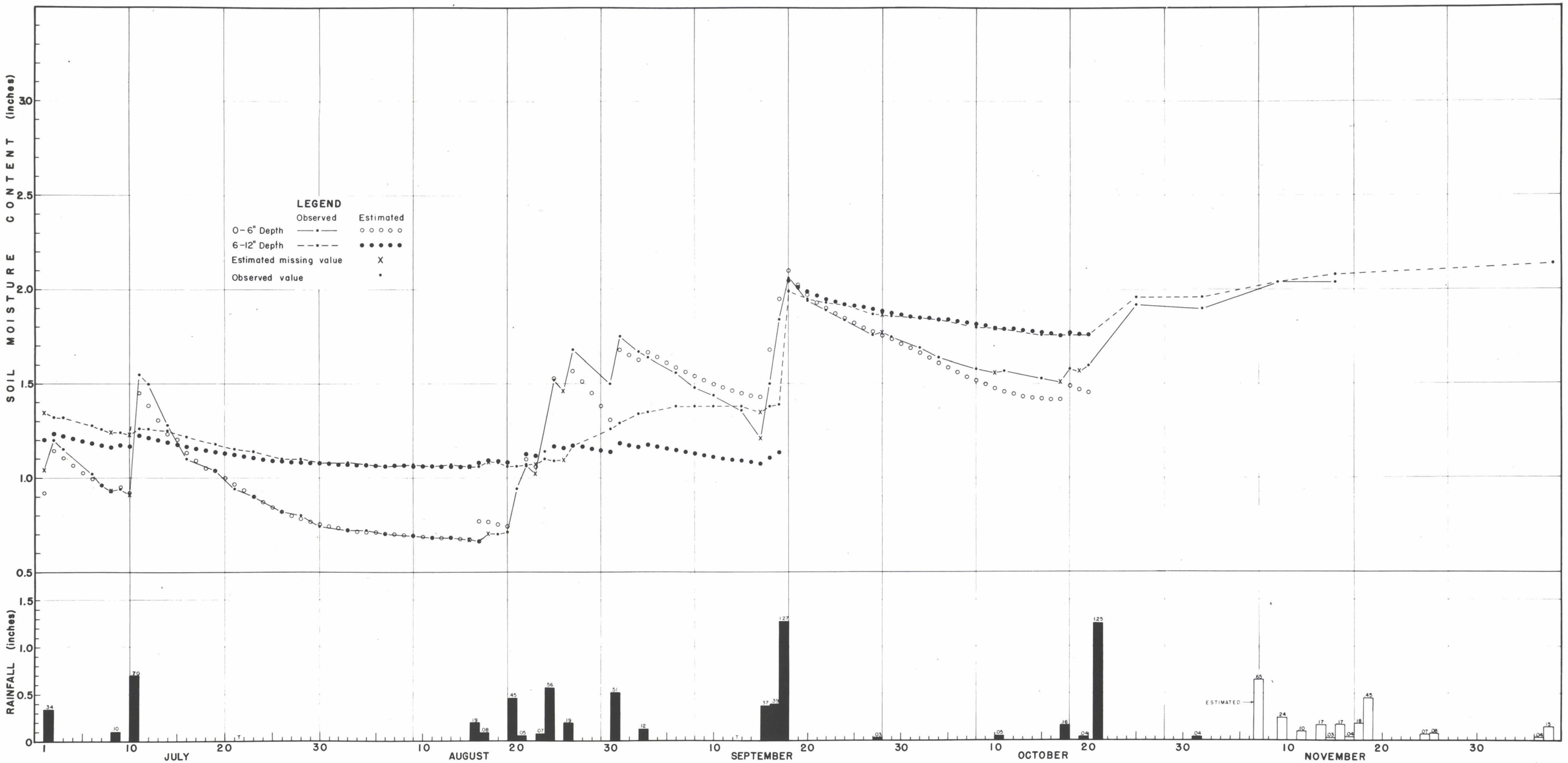

Figure 25. Observed versus estimated soil moisture content, and precipitation at Wheat site July through December.

Table 39.--Depletion rates--Valley
0-6" depth

Days	Soil Moisture Content: Winter	Spring	Summer	Fall
	inches water			
0	3.205	2.625	2.463	
1	3.200	2.561	2.384	
2	3.193	2.490	2.311	
3	3.181	2.425	2.240	
4	3.167	2.335	2.172	
5	3.148	2.251	2.109	
6	3.124	2.168	2.048	
7	3.098	2.088	1.989	
8	3.065	2.011	1.934	
9	3.029	1.940	1.880	
10	2.987	1.876	1.830	
11	2.942	1.805	1.782	
12	2.903	1.721	1.740	
13	2.870	1.633	1.700	
14	2.839	1.540	1.663	
15	2.811	1.435	1.625	
16	2.783	1.356	1.590	
17	2.760	1.291	1.555	
18	2.737	1.238	1.523	
19	2.714	1.184	1.491	
20	2.696	1.137	1.463	
21	2.682	1.090	1.435	
22	2.670	1.046	1.411	
23	2.658	1.003	1.390	
24	2.642	.964	1.368	
25	2.626	.925	1.345	
26	2.608	.889	1.329	
27	2.584	.857	1.311	
28	2.560	.825	1.299	
29	2.539	.800	1.289	
30	2.525	.778	1.282	
31	2.516	.755	1.280	
32	2.512	.734	1.276	
33	2.511	.717	1.274	
34		.699	1.273	
35		.681	1.273	
36		.667	1.273	
37		.650		
38		.634		
39		.618		
40		.602		
41		.590		
42		.578		
43		.565		
44		.557		
45		.549		
46		.541		
47		.538		
48		.537		
49		.536		
50		.536		
51		.535		

Table 40.--Depletion rates--Valley
6-12" depth

Days	Soil Moisture Content: Winter-Spring-Summer	Fall	Days	Soil Moisture Content: Winter-Spring-Summer	Fall
	inches water			inches water	
0	2.930	1.415	48	1.789	
1	2.929	1.403	49	1.740	
2	2.923	1.391	50	1.691	
3	2.912	1.378	51	1.640	
4	2.898	1.361	52	1.586	
5	2.876	1.344	53	1.529	
6	2.851	1.328	54	1.469	
7	2.818	1.308	55	1.404	
8	2.782	1.289	56	1.336	
9	2.750	1.270	57	1.273	
10	2.720	1.252	58	1.218	
11	2.691	1.234	59	1.162	
12	2.662	1.215	60	1.119	
13	2.635	1.197	61	1.078	
14	2.610	1.178	62	1.042	
15	2.583	1.157	63	1.016	
16	2.560	1.140	64	.994	
17	2.540	1.125	65	.978	
18	2.521	1.111	66	.962	
19	2.509	1.099	67	.950	
20	2.498	1.089	68	.940	
21	2.486	1.077	69	.932	
22	2.475	1.067	70	.929	
23	2.461	1.059	71	.921	
24	2.448	1.048	72	.917	
25	2.431	1.040	73	.910	
26	2.412	1.032	74	.900	
27	2.397	1.025	75	.891	
28	2.369	1.021	76	.881	
29	2.343	1.019	77	.871	
30	2.319	1.019	78	.861	
31	2.292	1.019	79	.849	
32	2.264	1.019	80	.838	
33	2.240	1.019	81	.824	
34	2.215	1.019	82	.811	
35	2.190	1.019	83	.799	
36	2.168	1.019	84	.782	
37	2.142	1.019	85	.779	
38	2.119	1.019	86	.754	
39	2.094	1.019	87	.742	
40	2.069	1.019	88	.731	
41	2.040	1.019	89	.723	
42	2.011	1.019	90	.719	
43	1.983	1.019	91	.712	
44	1.951		92	.711	
45	1.915		93	.711	
46	1.875		94	.711	
47	1.833		95	.711	

Table 41.--Depletion rates--Forest
C-6" depth

Days	Soil Moisture Content: Winter	Spring	Summer	Fall	Days	Soil Moisture Content: Winter	Spring	Summer	Fall
	inches water					inches water			
0	2.765	2.765	2.339	1.975	32	1.902	.779	.846	
1	2.669	2.668	2.300	1.905	33	1.872	.764	.840	
2	2.608	2.608	2.263	1.837	34	1.838	.752	.832	
3	2.561	2.561	2.224	1.777	35	1.798	.742	.829	
4	2.522	2.522	2.186	1.719	36	1.759	.734	.823	
5	2.490	2.490	2.145	1.670	37	1.712	.728	.820	
6	2.464	2.465	2.105	1.628	38	1.663	.720	.815	
7	2.441	2.441	2.062	1.582	39	1.615	.712	.811	
8	2.421	2.420	2.019	1.545	40	1.562	.709	.809	
9	2.403	2.399	1.971	1.502	41	1.511	.703		
10	2.385	2.379	1.923	1.465	42	1.461	.699		
11	2.368	2.360	1.871	1.427	43	1.411	.694		
12	2.350	2.340	1.820	1.388	44	1.362	.690		
13	2.334	2.326	1.765	1.349	45	1.316	.686		
14	2.318	2.310	1.706	1.310	46	1.272	.681		
15	2.304	2.292	1.640	1.270	47	1.231	.675		
16	2.292	2.275	1.515	1.231	48		.670		
17	2.281	2.257	1.479	1.194	49		.666		
18	2.272	2.238	1.396	1.156	50		.661		
19	2.266	2.217	1.320	1.114	51		.655		
20	2.260	2.195	1.250	1.071	52		.650		
21	2.252	2.171	1.175	1.034	53		.644		
22	2.249	2.150	1.110	1.004	54		.641		
23	2.245	2.128	1.049	.980	55		.639		
24	2.241	2.102	.997	.959	56		.635		
25	2.240	2.079	.950	.939	57		.631		
26	2.239	2.055	.912	.921	58		.630		
27	2.237	2.030	.880	.907	59		.627		
28	2.233	2.008	.854	.890	60		.622		
29	2.232	1.982	.831	.878	61		.620		
30	2.231	1.959	.811	.864	62		.620		
31		1.931	.792	.863	63		.620		

Table 42.--Depletion rates--Forest
6-12" depth

Days	Soil Moisture Content				Days	Soil Moisture Content			
	Winter	Spring	Summer	Fall		Winter	Spring	Summer	Fall
	inches water					inches water			
0	2.874	2.874	1.849	1.382	34	2.040	1.940	.932	.852
1	2.796	2.796	1.818	1.330	35	2.038	1.926	.912	.849
2	2.709	2.709	1.793	1.291	36	2.035	1.914	.895	.843
3	2.604	2.604	1.775	1.263	37	2.032	1.902	.879	.841
4	2.503	2.503	1.760	1.240	38	2.030	1.889	.864	.840
5	2.442	2.442	1.748	1.222	39	2.028	1.871	.852	.840
6	2.401	2.401	1.739	1.208	40	2.022	1.850	.840	.840
7	2.369	2.369	1.731	1.191	41		1.830	.830	.840
8	2.340	2.340	1.727	1.175	42		1.809	.820	
9	2.316	2.316	1.723	1.158	43		1.790	.811	
10	2.295	2.295	1.718	1.140	44		1.770	.802	
11	2.278	2.278	1.708	1.124	45		1.749	.796	
12	2.261	2.261	1.693	1.108	46		1.728	.789	
13	2.243	2.243	1.679	1.080	47		1.705	.781	
14	2.227	2.227	1.660	1.075	48		1.682	.776	
15	2.209	2.209	1.638	1.059	49		1.659	.769	
16	2.190	2.190	1.612	1.041	50		1.631	.763	
17	2.175	2.175	1.584	1.029	51		1.602	.759	
18	2.160	2.160	1.554	1.016	52		1.569	.754	
19	2.145	2.145	1.521	1.003	53		1.537	.750	
20	2.132	2.132	1.489	.992	54		1.511	.746	
21	2.129	2.129	1.455	.979	55		1.491	.742	
22	2.107	2.107	1.420	.965	56		1.476	.740	
23	2.099	2.092	1.382	.954	57		1.461	.739	
24	2.090	2.079	1.340	.942	58		1.452	.738	
25	2.084	2.068	1.295	.930	59		1.444	.735	
26	2.079	2.053	1.244	.921	60		1.400	.734	
27	2.075	2.041	1.193	.909	61			.732	
28	2.069	2.030	1.140	.900	62			.732	
29	2.061	2.018	1.091	.889	63			.731	
30	2.054	2.004	1.052	.880	64			.731	
31	2.050	1.992	1.019	.871	65			.731	
32	2.048	1.974	.988	.863					
33	2.042	1.958	.958	.859					

Table 43.--Depletion rates--Couse
0-6" depth

Days	Soil Moisture Content: Winter-Spring	Summer	Fall	Days	Soil Moisture Content: Winter-Spring	Summer	Fall
	inches water				inches water		
0	2.634	2.240	2.065	23	1.030	.617	1.080
1	2.510	1.940	1.939	24	.972	.599	1.073
2	2.381	1.749	1.850	25	.922	.581	1.069
3	2.255	1.651	1.782	26	.878	.565	1.064
4	2.140	1.589	1.729	27	.835	.550	1.063
5	2.024	1.539	1.682	28	.792	.534	1.062
6	1.860	1.493	1.649	29	.754	.521	1.061
7	1.750	1.451	1.595	30	.719	.508	1.061
8	1.680	1.403	1.550	31	.685	.495	
9	1.635	1.339	1.507	32	.651	.484	
10	1.590	1.241	1.468	33	.620	.473	
11	1.548	1.150	1.429	34	.589	.464	
12	1.501	1.065	1.390	35	.560	.453	
13	1.461	.996	1.350	36	.531	.447	
14	1.423	.932	1.313	37	.501	.438	
15	1.382	.870	1.278	38		.430	
16	1.344	.820	1.241	39		.422	
17	1.301	.777	1.209	40		.415	
18	1.265	.740	1.178	41		.408	
19	1.223	.710	1.150	42		.402	
20	1.180	.681	1.127	43		.398	
21	1.133	.659	1.108	44		.392	
22	1.080	.635	1.092				

Table 44.--Depletion rates--Couse
6-12" depth

Days	Soil Moisture Content: Winter-Spring	Summer	Days	Soil Moisture Content: Winter-Spring	Summer
	inches water			inches water	
0	2.150	1.261	31	1.383	.868
1	2.142	1.254	32	1.361	.859
2	2.132	1.250	33	1.339	.851
3	2.129	1.244	34	1.317	.846
4	2.102	1.235	35	1.292	.840
5	2.081	1.225	36	1.269	.836
6	2.057	1.214	37	1.244	.831
7	2.039	1.200	38	1.221	.828
8	1.999	1.183	39	1.199	.824
9	1.957	1.164	40	1.170	.821
10	1.921	1.141	41	1.141	.819
11	1.889	1.113	42	1.115	.817
12	1.861	1.080	43	1.089	.814
13	1.835	1.050	44	1.063	.812
14	1.812	1.024	45	1.039	.808
15	1.790	1.001	46	1.018	.802
16	1.769	.982	47	.998	.800
17	1.744	.968	48	.980	.798
18	1.720	.953	49	.965	.795
19	1.695	.941	50	.951	.793
20	1.670	.931	51	.940	.792
21	1.642	.923	52	.931	.791
22	1.614	.916	53	.922	.790
23	1.586	.910	54		.790
24	1.558	.902	55		.790
25	1.530	.900	56		.790
26	1.500	.899	57		.790
27	1.475	.897	58		.790
28	1.450	.892	59		.790
29	1.428	.885	60		.790
30	1.402	.876			

Table 45.--Depletion rates--Fallow
0-6" depth

Days	Soil Moisture Content			Days	Soil Moisture Content		
	Winter-Spring	Summer	Fall		Winter-Spring	Summer	Fall
	inches water				inches water		
0	2.908	2.346	2.110	19	1.398	1.355	1.409
1	2.761	2.151	1.953	20	1.389	1.344	1.392
2	2.613	1.998	1.845	21		1.335	1.375
3	2.464	1.850	1.769	22		1.329	1.361
4	2.321	1.728	1.707	23		1.322	1.347
5	2.202	1.633	1.658	24		1.316	1.334
6	2.093	1.579	1.618	25		1.311	1.323
7	1.963	1.539	1.585	26		1.306	1.315
8	1.823	1.510	1.560	27		1.301	1.309
9	1.682	1.485	1.540	28		1.299	1.303
10	1.604	1.467	1.527	29		1.292	1.303
11	1.557	1.450	1.518	30		1.288	1.302
12	1.522	1.437	1.508	31		1.284	
13	1.493	1.421	1.497	32		1.283	
14	1.470	1.410	1.485	33		1.282	
15	1.450	1.397	1.473	34		1.281	
16	1.434	1.385	1.460	35		1.281	
17	1.421	1.375	1.443	36		1.280	
18	1.410	1.365	1.427				

Table 46.--Depletion rates--Fallow
6-12" depth

Days	Soil Moisture Content: Spring-Fall	Soil Moisture Content: Summer	Days	Soil Moisture Content: Spring-Fall	Soil Moisture Content: Summer
	inches water			inches water	
0	2.545	2.159	26	1.862	1.620
1	2.504	2.065	27	1.841	1.616
2	2.460	2.994	28	1.820	1.611
3	2.414	2.935	29	1.798	1.607
4	2.374	2.890	30	1.778	1.601
5	2.340	2.860	31	1.759	1.597
6	2.311	2.834	32	1.740	1.593
7	2.284	2.819	33	1.724	1.590
8	2.261	2.804	34	1.710	1.587
9	2.240	2.790	35	1.695	1.583
10	2.219	2.774	36	1.682	1.581
11	2.198	1.758	37	1.674	1.579
12	2.176	1.740	38	1.667	1.575
13	2.154	1.719	39	1.660	1.572
14	2.134	1.702	40	1.503	1.570
15	2.113	1.688	41	1.450	1.568
16	2.092	1.674	42	1.649	1.566
17	2.071	1.667	43	1.648	1.563
18	2.050	1.658	44	1.644	1.562
19	2.028	1.650	45	1.643	1.560
20	2.002	1.643	46	1.642	1.560
21	1.979	1.638	47	1.642	1.560
22	1.952	1.632	48	1.644	1.560
23	1.925	1.630	49	1.640	1.560
24	1.902	1.627	50	1.639	1.560
25	1.881	1.622			

Table 47.--Depletion rates--Wheat
0-6" depth

Days	Soil Moisture Content			Days	Soil Moisture Content		
	Winter-Spring	Summer	Fall		Winter-Spring	Summer	Fall
	inches water				inches water		
0	2.600	2.662	2.275	28	1.185	.778	1.429
1	2.454	2.415	2.141	29	1.156	.762	1.425
2	2.308	2.254	2.060	30	1.130	.750	1.423
3	2.179	2.114	1.998	31		.740	
4	2.069	1.983	1.950	32		.730	
5	1.980	1.850	1.917	33		.723	
6	1.903	1.773	1.887	34		.718	
7	1.838	1.700	1.860	35		.711	
8	1.779	1.637	1.834	36		.708	
9	1.740	1.582	1.810	37		.702	
10	1.708	1.530	1.789	38		.700	
11	1.682	1.470	1.769	39		.698	
12	1.665	1.402	1.749	40		.694	
13	1.652	1.329	1.725	41		.689	
14	1.639	1.250	1.701	42		.684	
15	1.626	1.191	1.678	43		.680	
16	1.614	1.145	1.651	44		.675	
17	1.600	1.102	1.625	45		.671	
18	1.581	1.062	1.599	46		.667	
19	1.561	1.025	1.574	47		.663	
20	1.534	.990	1.550	48		.660	
21	1.502	.960	1.528	49		.656	
22	1.462	.927	1.507	50		.652	
23	1.413	.894	1.489	51		.649	
24	1.362	.861	1.470	52		.645	
25	1.308	.835	1.453	53		.641	
26	1.261	.812	1.441				
27	1.220	.792	1.432				

Table 48.--Depletion rates--Wheat
6-12" depth

Days	Soil Moisture Content			Days	Soil Moisture Content	
	Winter-Spring	Summer	Fall		Winter-Spring	Summer	Fall
	inches water				inches water	
0	2.688	1.818	2.049	36	1.614	1.145
1	2.660	1.796	2.015	37	1.585	1.137
2	2.672	1.775	1.990	38	1.564	1.129
3	2.570	1.756	1.970	39	1.549	1.120
4	2.505	1.737	1.951	40	1.539	1.112
5	2.456	1.720	1.938	41	1.530	1.103
6	2.417	1.704	1.926	42	1.523	1.096
7	2.380	1.690	1.918	43	1.518	1.090
8	2.350	1.668	1.909	44	1.512	1.085
9	2.324	1.641	1.899	45	1.509	1.082
10	2.300	1.603	1.888	46	1.506	1.080
11	2.275	1.560	1.877	47		1.078
12	2.254	1.521	1.868	48		1.075
13	2.233	1.490	1.860	49		1.072
14	2.214	1.461	1.854	50		1.070
15	2.196	1.439	1.849	51		1.068
16	2.179	1.420	1.845	52		1.065
17	2.161	1.402	1.840	53		1.063
18	2.141	1.387	1.833	54		1.063
19	2.120	1.371	1.826	55		1.063
20	2.098	1.352	1.818	56		1.062
21	2.072	1.336	1.809	57		1.061
22	2.050	1.321	1.800	58		1.060
23	2.028	1.304	1.794	59		1.059
24	2.003	1.290	1.790	60		1.059
25	1.979	1.279	1.784	61		1.059
26	1.953	1.265	1.781	62		1.058
27	1.929	1.250	1.775	63		1.058
28	1.902	1.238	1.767	64		1.058
29	1.880	1.224	1.759	65		1.058
30	1.853	1.211		66		1.057
31	1.821	1.199		67		1.057
32	1.780	1.188		68		1.056
33	1.740	1.175		69		1.055
34	1.698	1.165		70		1.055
35	1.653	1.154				